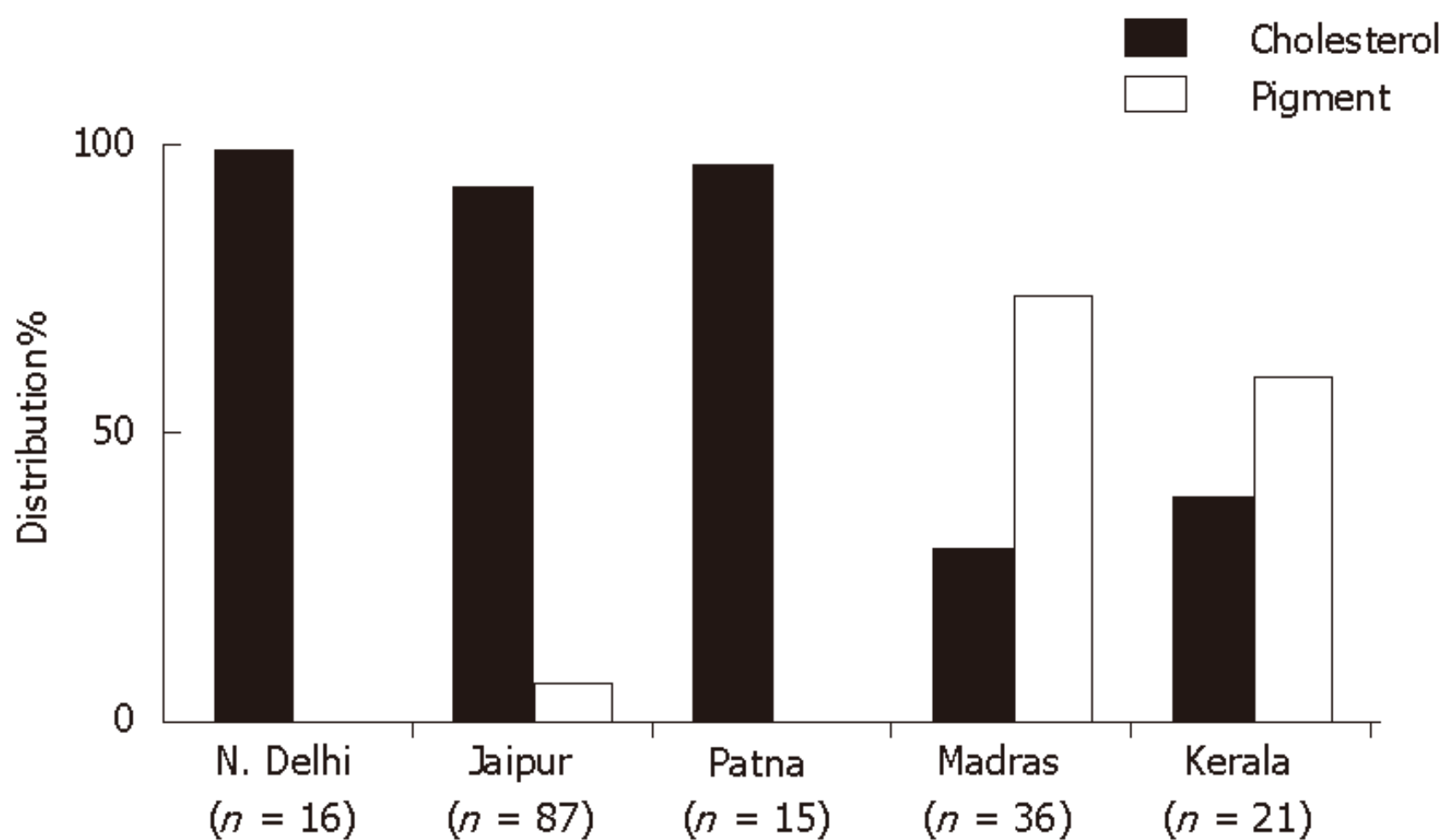


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## Structure and dynamics of hepatic endothelial fenestrae

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### TEXT

Liver sinusoids can be regarded as unique capillaries that differ from other capillaries by the presence of endothelial cells with open fenestrae lacking a diaphragm and a basal lamina. Fenestrae are dynamic structures that act as a sieve controlling the extensive exchange of material between the blood and the parenchymal cells. Alterations in the number or diameter of fenestrae by drugs, hormones, toxins, and diseases can produce serious perturbations in liver function.

Few studies have established the involvement of the cytoskeleton in the regulation of the number and size of fenestrae. Although a specialized cytoskeleton is clearly associated with fenestrae, evidence at the ultrastructural and biochemical level is limited. No mechanism or structure has been described to explain the changes in the number of fenestrae. Therefore, the aim of our study is to investigate the fine structure of fenestrae by using a variety of high-resolution microscopic methods, and to study the effect of

drugs, known to interfere with the cytoskeleton, on the dynamics of fenestrae. In order to investigate these aspects under standardized conditions, it was necessary to develop a method for the isolation, purification and cultivation of liver sinusoidal endothelial cells (LSEC).

LSECs were isolated by collagenase perfusion of the liver, isopycnic sedimentation in a two-step Percoll gradient, and selective adherence to different substrates. LSECs isolated by this method provide a vital and responsive cell population enabling the study of structure and function of these cells *in vitro*. Detergent-extracted whole mounts of LSECs show an integrated cytoskeleton. Sieve plates and fenestrae are both delineated by a filamentous sieve plate, and fenestrae-associated cytoskeleton ring (FACR). Because of the fact that the FACR opens and closes like fenestrae in response to different treatments, it is assumed that this ring probably regulates the size changes of the fenestrae. Treatment of LSECs with various microfilament disrupting agents shows that the actin cytoskeleton determines the number of fenestrae. Using microtubule-altering agents we could demonstrate that microtubules are involved in the increase of the number of fenestrae after microfilament disruption. Furthermore, by treating LSECs with the actin inhibitor misakinolide, we were able to capture a structure indicative of fenestrae formation, which we propose to call fenestrae forming center (FFC). Recently we have used new actin binding agents discovered by the Stony Brook Group that belong to a large family of structurally related marine macrolides isolated from various pacific sponges. The mechanism of action of these novel actin-perturbing drugs is still under study, but they appear to exhibit barbed-end capping and F-actin severing activity. Interestingly, besides misakinolide, we found that one of these new agents is also able to reveal the process of fenestrae formation. Therefore, the unmasking of nascent fenestrae, emerging from the FFCs only by two different agents, indicates once more that specific alterations in actin organization at particular locations, and at particular times are required to bring to light the process of fenestrae formation. In addition, in order to study the process of fenestrae formation in living LSECs we applied atomic force microscopy. Unfortunately, we demonstrated that the resolution of the stomic force microscope using living LSECs was poor as compared to dried-coated, dried-uncoated and wet-fixed cells. This difference in resolution could be explained by the difference in elasticity between living and fixed LSECs.

In conclusion, we demonstrated that fenestrae are delineated by a filamentous fenestrae-associated cytoskeleton which plays a role in maintaining and regulating the size of fenestrae after different treatments. In addition, our findings unambiguously show the involvement of special domains in *de novo* formation of fenestrae and focuses future research on the molecular composition of the FFC and the FACR.

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## Nodular regenerative hyperplasia of the liver: A review of 14 cases

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### INTRODUCTION

Nodular regenerative hyperplasia (NRH) of the liver is a chronic condition characterized by the development of nodules in the hepatic parenchyma without fibrosis. In this study we report 14 cases of NRH of the liver which were diagnosed during a 5-year period (1992-1997). The diagnosis was based on clinical manifestations, findings of the imaging studies and liver biopsy histology which showed nodules within the hepatic parenchyma without fibrosis. Vascular lesions were not present. The most common clinical manifestations were those of portal hypertension, namely hepatosplenomegaly, ascites and gastrointestinal bleeding due to rupture of esophageal varices. Liver failure and hepatic encephalopathy did not develop. Synthetic liver function, as evidenced by serum albumin, bilirubin and prothrombin time was not impaired.

In 10 (71%) of 14 cases there was cholestasis with elevation of g-glutamyl transpeptidase and alkaline phosphatase. Interestingly, 10 of our 14 patients had associated diseases, 4 myeloproliferative disease, 2 patients had undergone renal transplantation, one heart-lung transplantation and 3 had heart failure, an observation which has been recognized in other studies. The patients were treated mainly for portal hypertension with beta blockers, surgical shunt (mesenteric-caval shunt) and transjugular intrahepatic portal systemic shunt (TIPSS) with satisfactory results.

Patients with NRH of the liver may be predisposed to the

development of hepatoma and should be followed up with regular measurements of alpha-feto-protein and CT scan. Although NRH of the liver is not a common condition, it should be considered in patients with unexplained portal hypertension and cholestatic syndrome. It is distinguished from liver cirrhosis in view of the difference in the natural history, prognosis and management.

Pancreatic cancer is the fourth leading cause of cancer death with poor prognosis. The 5-year survival rate, even after surgical resection remains low. Diagnosis is usually made at a stage when the tumor is inoperable. Diagnosis of early pancreatic cancer is still elusive.

The inability, worldwide, to diagnose early pancreatic cancer stems from the fact that it is difficult to identify high risk groups and apply a screening program in the general population. The only effective form of management at the present is surgical resection which is feasible in 15%-18% of patients, even in centers with rich experience.

### ETIOLOGY

The main etiological factors in carcinoma of the pancreas are as follows:

1. Smoking, is the commonest risk factor which doubles the risk.
2. Diet high in animal fat and protein and low in fresh fruit and vegetable.
3. Genetic factors which cause around 10% of all cases. Abnormality of BR CA 2 is the most important germ cell disorder.
4. Chronic pancreatitis may account for 5% of all cases of pancreatic cancer.
5. Hereditary disorders associated with carcinoma of the pancreas are familial pancreatic cancer, hereditary pancreatitis, hereditary non polyposis colorectal cancer, familial adenomatous polyposis and Gardner's syndrome, and melanoma syndrome.

### MOLECULAR BIOLOGY

The genetic defects which have been characterized in carcinoma of the pancreas are in the order of frequency mutations of the K-ras, p16, p53 and DPC4 genes. Recently K-ras mutations have been identified in the non-invasive form of neoplastic precursor of carcinoma of the pancreas, the "pancreatic intraductal lesion (PIL)".

### DIAGNOSIS AND STAGING

The imaging methods, mainly computed tomography, magnetic resonance [JY] cholangiopancreatography, endoscopic retrograde cholangiopancreatography and endoscopic ultrasound have contributed significantly to the diagnosis and staging for resectability.

The main criteria for resectability are: (1) liver metastases; (2) vascular involvement of superior mesenteric artery, celiac axis or portal vein; (3) extension of tumor to neighboring organs and; and (4) ascites or peritoneal involvement.

Percutaneously guided fine needle aspiration biopsy or core



biopsy have been utilized to confirm the diagnosis preoperatively. The possible seeding of tumor cells has been a concern to the effect that percutaneous biopsy should be reserved for patients who are not considered for surgical resection. Pancreatic biopsies may be also obtained with endoscopic ultrasound guidance.

Tumor markers may be useful in the detection of carcinoma of the pancreas in patients where there is clinical suspicion. CA 19.9 is the most widely used tumor.

## MANAGEMENT

Surgical resection is the mainstay of treatment which offers a better prognosis with a 5-year survival rate ranging between 15%-20% and a perioperative mortality of 5%.

Clinical trials using adjuvant postoperative chemotherapy in resectable tumors to prolong survival are in progress. The surgical procedures are the classical Whipple operation (partial pancreateo-duodenectomy), the pylorus-preserving pan createo-duodenectomy and distal resection.

Non-operative management developments in carcinoma of the pancreas have been slow. In chemotherapy, the agent gemcitabine may contribute to break the barrier of chemoresistance which has characterized chemotherapy and has been an obstacle to tumor response and prolong life expectancy.

Matrix metalloproteinases inhibitors (MMPI) have been used in advanced carcinoma of the pancreas with encouraging results. Matrix metalloproteinases (MMP) are proteolytic enzymes which have a role in tumor invasion and metastases. Inhibition of MMP may be used in adjuvant and palliative management.

Specific immunotherapy as vaccine against mucin-associated antigens and antibody mediated therapy targeted for antigens 17-1A and TAG-72 are currently evaluated in clinical trials.

Gene therapy may have a potential in the treatment of carcinoma of the pancreas, which aims to the restoration of tumor suppression genes *p53* and *p16* and the suppression of oncogenes *K-ras* and *Bcl-2* with antisense nucleotides *Bcl-2* is responsible for

the resistance to chemotherapy.

## FUTURE PERSPECTIVES FOR CARCINOMA OF THE PANCREAS

Prognosis of pancreatic carcinoma will improve if the diagnosis can be made in the early stages I or II. In order to achieve this goal, high risk groups should be identified and screening programs should apply with tumor markers and endoscopic ultrasound examination.

Gene therapy may be useful at an early stage in those individuals with family history and positive *K-ras*. A better understanding of the molecular and biochemical aspects of carcinoma of the pancreas will provide new clues which will lead to effective modes of treatment.

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## Prevalence and type of biliary stones in India

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### PREVALENCE AND TYPE OF BILIARY STONES IN INDIA

Since it is known generally in the western world that gallbladder stones are uncommon in Asia Pacific region, and the primary bile duct stones (oriental cholangitis) are common, we undertook a systematic study at our center in Northern India to find out the prevalence of gallstones as well as the type of stones in the gallbladder and in the bile duct.

#### GALLBLADDER STONES

A gallstones survey limited to railroad workers conducted in 1966 utilizing oral cholecystography had suggested that gallbladder stones occurred 7 times more commonly in North Indian workers than in South Indian workers<sup>[1]</sup>. This difference was attributed to the different ethnic background of the workers. Delhi, being a cosmopolitan city, has inhabitants from different parts of the country living often in colonies comprised mostly of their own ethnic groups. This provided us an excellent opportunity to study the prevalence of gallstones in different ethnic groups. Thus, we performed a community study in four different colonies of Delhi, each with inhabitants belonging to a specific ethnic group (Table 1). The study comprised a short clinical history and examination, a dietary history on a pre-formed questionnaire and an abdominal ultrasound

examination. Of a total of 1104 subjects examined, 48 (4.3%) were found to have gallbladder stones<sup>[2]</sup>. This prevalence is about half of that in the western world (10%). The most interesting feature, however, was that the gallstone prevalences varied tremendously between our different ethnic groups, the highest being in Punjabis (North Indians) and the lowest in South Indians (Table 1). Besides ethnic influence, dietary differences might also be responsible for this wide variation in gallstone prevalence. However, the number of subjects studied and the design of this study did not permit us to differentiate between these two etiological factors.

We then, embarked on another study to determine the composition of gallstones and the type of gallstones from different parts of the country. We obtained gallstones from consecutive patients undergoing cholecystectomy at four different centers, three from North India (New Delhi, Jaipur and Patna) and two from South India (Chennai and Kerala). Cholesterol gallstones were defined as those which contained more than 50% of their dry weight as cholesterol and pigment gallstones were defined as those containing less than 20% of their dry weight as cholesterol. Using this definition we found a striking difference in the types of gallstones obtained from the two regions. Those from North India were predominantly cholesterol and those from South India were predominantly pigment gallstones<sup>[3]</sup> (Figure 1). The reason for this striking difference in the type of gallstones in the two regions is not clear, but again may be due to dietary differences or genetic predisposition. There was no significant difference between the ages of gallstone patients from South India and North India.

#### COMMON BILE DUCT (CBD) STONES

To study the chemical composition of CBD stones in patients from different parts of the country, we obtained CBD stones collected at operation from consecutive patients. Thus, CBD stones from 62 patients were obtained from a South Indian center and from 74 patients belonging to a North Indian center. They were divided into 2 groups, Group I consisting of those who had stones in their gallbladder or had undergone cholecystectomy earlier, and Group II of those who did not have stones in the gallbladder. All consecutive patients with CBD stones at one center in North India (New Delhi) and one center in South India (Chennai) were studied. The stones were chemically analyzed after retrieval. Those containing more than 50% of their dry weight as cholesterol were labeled as cholesterol stones. Others were labeled as bilirubinate stones. The results are shown in Table 2. The difference between South India and North India in terms of cholesterol vs pigment stones in the gallbladder seen above is reflected again in CBD stones. It also reiterates the fact that CBD stones originate from the gallbladder and then migrate to CBD in most patients with stones in the gallbladder<sup>[4]</sup>. On the other hand, in patients who did not have stones in the gallbladder (Group II), the CBD stones were presumed to have formed *de novo* in the CBD, i.e. primary CBD stones. Such stones are classically described as being bilirubinate stones. They were found in 90% of South Indians in our study. However, in 78% of North Indian

**Table 1 Gallstone prevalence in 4 different communities in New Delhi *n*%**

Community	<i>n</i>	GS prevalence No.
Punjabi	203	15 (7.4)
Gujaratis	142	6 (7.4)
Bengalis	545	24 (4.4)
South Indians	214	4 (1.8)

*n* = Number of subjects studied.

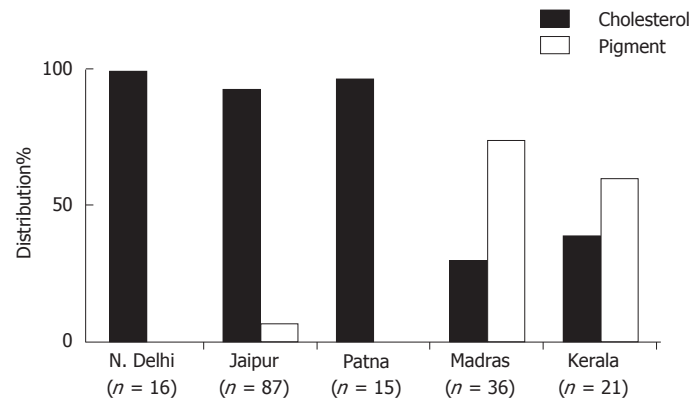
**Table 2 Cholesterol *vs* bilirubinate CBD stones in different regions of India *n*%**

	South Indian Center		North Indian Center	
	Group I	Group II	Group I	Group II
Cholesterol	10 (47)	4 (10)	54 (96)	14 (78)
Pigment	11 (53)	37 (90)	2 (4)	4 (22)

patients in CBD stones retrieved were predominantly of cholesterol type (Table 2). This suggests that in North Indians either most stones are cholesterol rich whether formed in the gallbladder or bile duct. It is not unusual for a single stone in the gallbladder to migrate to the CBD giving a false impression of primary CBD stone rather than having had its origin in the gallbladder<sup>[4]</sup>.

## CONCLUSION

The prevalence of gallbladder stones varies widely in different communities in India, the North Indians having 2-4 fold higher prevalence as compared with those among South Indians. Furthermore, there is a predominance of cholesterol gallstones among the North Indians and that is reflected both in the gallbladder as well as CBD stone analysis, including the CBD stones

**Figure 1 Geographic distribution of cholesterol vs pigment gallstones in India (*n* = 175).**

not accompanied by a demonstrable stone in the gallbladder. In contrast, South Indians have a predominance of pigment gallstones both in the gallbladder and the CBD.

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## The epidemiology of IBD worldwide

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### Abstract

In the western world a sharp rise in the incidence of inflammatory bowel disease (IBD) has been observed since the early 1950s. The increase in the incidence of ulcerative colitis preceded the increase in the incidence of Crohn's disease by about 10-15 yr. In high incidence areas, a female preponderance at a young age is observed in Crohn's disease, whereas in ulcerative colitis male incidence is still high at older ages. IBD is more common in the western world than in eastern areas and, in both the United States and Europe, a north-south gradient has been reported, with IBD more common in the north than in the south. There are also indications that in typically low incidence areas, more cases are being seen lately. Rates for Japan suggest that this Asian population is now affected with approximately equal frequency as western populations with regard to ulcerative colitis; Crohn's

disease in contrast is still less common. The prevalence of Crohn's disease in the Chinese populations in Hong Kong and Singapore appears to be increasing, and more cases have also been observed lately in central China. This could be due to a greater awareness and better availability of health care and/or improved study methods. However, it may also be a real increase, reflecting changing environmental factors. Both genetic factors and environment are thought to be important in developing IBD, the observed increase during the past decennia is probably due to environmental factors since genetic make-up cannot change that quickly. Smoking is the only consistent risk factor in case-control studies, but does not seem to explain the observed changes in incidence and age and gender distribution in the two diseases, nutrition and life-style factors changed to a great extent during the period in which the rising incidence of IBD has been reported. Following the temporal trends in these areas and using case-control settings in a population based manner during the coming years should prove to be of great interest, as this might shed some light on the role of environmental factors in the etiology of IBD.

**Key words:** Inflammatory bowel disease; Crohn's disease; Ulcerative colitis; Environmental factors; Genetic factors

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## Current medical therapy of inflammatory bowel disease

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### Abstract

The current established drugs used to treat inflammatory bowel disease include glucocorticoids including newer agent budesonide, sulfasalazine and 5-ASA compounds such as Asacol, Pentasa,

Dipentum and Balsalazide and immunomodulatory agents such as azathioprine, and 6-mercaptopurine. Additional drugs which have been found to be useful, particularly in refractory cases of Crohn's disease including fistulizing type of Crohn's disease, include cyclosporine A, methotrexate, humanized antibody against TNF- $\alpha$  (cA<sub>2</sub>), FK506, IL-10, IL-11 and Probiotics. Various agents, whether used alone or in combination, have to be tailored for each patient and none is ideal. Exciting new developments directed against proinflammatory pathways, cytokines, free oxygen radicals and cell surface related immune targets are areas of intense recent investigations and many novel therapeutic agents are expected to be available in the near future for medical treatment of inflammatory bowel disease.

**Key words:** Inflammatory bowel disease; Medical therapy; Glucocorticoids; Budesonide; Sulfasalazine; Crohn's disease

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## Molecular biology of liver disorders: The hepatitis C virus and molecular targets for drug development

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### Abstract

Advances in molecular biology made possible the discovery of the virus that causes hepatitis C. However, little is known about the fundamental aspects of hepatitis C virus (HCV) replication, primarily because a robust cell culture has not been established. As a result, the currently available drugs for the treatment of hepatitis C are not

specifically directed against HCV. Based on what is known about the molecular biology of HCV, however, drugs can now be developed against specific viral and cellular targets. The next generation of drugs for the treatment of hepatitis C will likely be directed against non-structural HCV proteins with known enzymatic activities, such as the proteases, RNA helicase and RNA polymerase. Others agents targeted against the viral RNA, core protein that assembles into the virion capsid and putative cellular "receptors" that bind HCV envelope proteins are also being developed. These drugs should have fewer side effects than those currently available and be much more effective for the treatment of chronic hepatitis C.

**Key words:** Liver diseases; Hepatitis C virus/drug therapy; Molecular biology; Antiviral agents; United states food and drug administration; Interferon-alpha/therapeutic use; RNA, catalytic/therapeutic use; Oligonucleotides, antisense

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## Bile acid formation in primary human hepatocytes

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### Abstract

**AIM:** To evaluate a system for bile acid formation in human hepatocytes in comparison with HepG2 cells.

**METHODS:** Hepatocytes were isolated from normal human liver tissue and were cultured in serum free William's E medium. The medium was collected and renewed every 24 h. Bile acids and their precursors in media were finally analysed by gas chromatography-mass spectrometry.

**RESULTS:** Cholic acid (CA) and chenodeoxycholic acid (CDCA) conjugated with glycine or taurine accounted for 70% and 25% of total steroids. One third of CDCA was also conjugated with sulphuric acid. Dexamethasone and thyroid hormone alone or in combination did not significantly affect bile acid formation. The addition of cyclosporin A (10  $\mu$ m) inhibited the synthesis of CA and CDCA by about 13% and 30%, respectively.

**CONCLUSION:** Isolated human hepatocytes in primary culture behave as in the intact liver by converting almost quantitatively cholesterol to conjugated CA and CDCA. This is in contrast to cultured HepG2 cells, which release large amounts of bile acid precursors and unconjugated bile acids into the medium.

**Key words:** Bile acid and salts; Cells, cultured; Cholesterol/metabolism; Cyclosporine; Human hepatocytes; Mass fragmentography

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## Carbon14 urea breath test: A cost-effective tool for evaluation of *Helicobacter pylori* eradication

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### Abstract

**AIM:** To provide evidence that UBT is the most cost effective tool for evaluation of *H. pylori* eradication.

**METHODS:** Data on twenty six consecutive patients at Atlanta VA Hospital who underwent UBT were retrospectively reviewed. All patients had endoscopic diagnosis of peptic ulcers and biopsy proven *H. pylori* infection. Eight to ten weeks after completion of triple therapy (amoxicillin, biaxin and prilosec), all patients had C14 UBT (PY test kit, Charlottesville, Virginia). Ten patients had repeated endoscopic examinations and gastric biopsies. Twelve patients had serology tests for *H. pylori*.

**RESULTS:** UBT was negative in all patients (two patients had indeterminate result on the first time, but shown to be negative on the second UBT). Biopsies from all ten patients who were re endoscoped were negative for *H. pylori*. Serology tests on all the twelve patients were positive. Cure of *H. pylori* could not be determined on the titer change. All patients spent about 30 min in nuclear medicine laboratory, the endoscopic patients spent 2 h to 4 h in endoscopic laboratory; the cost for a UBT was about \$ 50, the cost for an endoscopy with biopsy was above \$ 200.

**CONCLUSION:** The C 14 UBT is a rapid, economic and accurate test to monitor *H. pylori* eradication. The test should be considered a gold standard test for evaluating the effectiveness of treatment of *H. pylori* infection, unless patients need repeated endoscopy to rule out gastric cancer.

**Key words:** *Helicobacter pylori*/pathogenicity; Peptic ulcer; Stomach neoplasms; Gastroscopy; Biopsy; Urea breath test

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## Management of difficult inflammatory bowel disease: Where are we now?

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### Abstract

Management of inflammatory bowel disease includes not only drug, endoscopic and surgical therapy but also psychosocial support, dietary and specific nutritional measures: a multidisciplinary medical, surgical, nursing and dietetic approach is essential for all patients, particularly those with complex or refractory disease. In this paper, current treatment of acute severe ulcerative colitis and steroid refractory or -dependent Crohn's disease is reviewed. Adjunctive intravenous cyclosporin is an alternative to urgent

colectomy in steroid-refractory patients with acute severe ulcerative colitis, while the place of intravenous heparin for this indication awaits clarification. Azathioprine or 6-mercaptopurine are useful options in chronically active, steroid-refractory or dependent Crohn's disease, but may take up to 4 mo to work. Methotrexate is a more recent immunomodulatory alternative. Of new therapies selectively aimed at specific pathophysiological targets, the first to reach clinical application is anti-TNF-alpha antibody (infliximab) for refractory Crohn's disease: its benefits are promising, but experience with it is limited to date, its cost is high and there are uncertainties about long-term safety. In view of the increasing variety and complexity of management options in inflammatory bowel disease, whether apparently responsive or difficult to treat, patients must participate in decisions about which therapies they are to be given.

**Key words:** Inflammatory bowel diseases/therapy; Social support; Diet therapy; Crohn's disease/therapy; Colitis, Ulcerative/therapy; Methotrexate

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## Autoimmunity in ulcerative colitis: Humoral and cellular immune response by tropomyosin in ulcerative colitis

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### Abstract

**AIM:** Autoimmunity has been emphasized in the pathogenesis of ulcerative colitis (UC). We reported that tropomyosin (TM) or TM related protein is a putative autoantigen in UC. In human fibroblast, at least 8 isoforms of TM have been identified with molecular weight range from 30 kD to 40 kD, depending upon the isoforms, and human TM isoforms (hTM5) has been found the main isoform in human intestinal epithelial cells. In this study, hTM5 was used as a putative auto-antigen for the humoral and T cell immune responses in patients with UC, Crohn's disease (CD) and healthy subjects (HS) as controls.

**METHODS:** Anti hTM antibody was examined by enzyme linked immunosorbent assay using human sera (UC 59, CD 28, HS 26) against hTM isoforms. The IFN- $\gamma$  production by peripheral blood T cells following stimulation by recombinant hTM5 was analyzed by ELISPOT assay.

**RESULTS:** Anti hTM5 antibody (IgG1) was detected in 15/59 (25.4%) patients with UC, 3/28 (10.7%) with CD, and 3/26 (11.5%) of HS. The OD value in UC was significantly higher than in CD and HS groups ( $P < 0.05$ ;  $P < 0.01$  respectively). Western blot analysis demonstrated immunoreactivity against hTM5 in several UC sera. ELISPOT assay demonstrated that IFN- $\gamma$  production is significantly higher in UC (7/18, 39.0%), compared with CD (0/8, 0%) and HS (0/7, 0%), ( $P < 0.05$ ).

**CONCLUSION:** A significantly higher immune response to hTM5 was present in UC compared to CD and HS. Further studies of the hTM5/peptides may provide immuno-biochemical mechanism of autoimmune process in UC.

**Key words:** Colitis, ulcerative; Autoimmunity; Immunity, cellular; Tropomyosin; Cellular immune response; Enzyme-linked immunosorbent assay

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## Therapeutic methods for diarrhoea in children

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### Abstract

Acute diarrhoea may manifest as acute watery diarrhoea or dysentery. The key to the management of acute watery diarrhoea is correction of dehydration, proper feeding and appropriate use of antibiotic in selected cases. Correction of dehydration may be

done by oral route by using oral rehydration salts solution (ORS) recommended by WHO/UNICEF or by intravenous administration of fluid and electrolytes, the preferred solution being Ringer's lactate. Antibiotic is required for severe cholera and shigellosis. Antiparasitic drugs are required for amoebiasis or giardiasis. Use of various antidiarrhoeals is strongly discouraged. Feeding during diarrhoea is very important. It does not worsen diarrhoea rather hastens recovery and prevents malnutrition. Supplementation of zinc as an adjunct to rehydration therapy has also been suggested.

**Key words:** Diarrhea, infantile/therapy; Dehydration; Antibiotics; Infusion, intravenous; Water-electrolyte balance; Antidiarrheals; Nutritional requirements

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## Detection of *Mycobacterium avium* subspecies paratuberculosis in surgical pathology blocks from patients with Crohn's disease in China

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### Abstract

**AIM:** To determine whether *MAP* can be detected in archival paraffin embedded full thickness samples of intestinal tissue from patients in China with Crohn's disease (CD), ulcerative colitis (UC), and in control subjects (NIBD) having surgery for bowel cancer.

**METHODS:** Optimized procedures for the removal of paraffin, recovery of tissue and access to *MAP* DNA, followed by *MAP*-specific nested IS900 PCR. Confirmation of specific amplification by Southern blotting and DNA sequencing.

**RESULTS:** IS900 PCR positive tests identified *MAP* in 9 (69%) of 13 CD, 1 of 3 UC and 2 (14%) of 14 NIBD in the presence of correctly reporting positive and negative sample and reagent control reactions. DNA sequence analysis of the 298 bp IS900 PCR amplification product from *MAP* in 2 Chinese CD patients demonstrated 99% homology with the GenBank IS900 sequence accession number X16293.

**CONCLUSION:** Although larger numbers of Chinese samples need to be studied, these initial results are consistent with an exposure of human populations in China to *MAP*, and an involvement of this pathogen in chronic inflammation of the intestine of the Crohn's disease type. The results are in agreement with similar positive studies reported from China, from Western Europe and elsewhere.

**Key words:** Crohn disease; *Mycobacterium avium*; Paratuberculosis; Pathology, surgical; Colitis, ulcerative; Polymerase chain reaction

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Cheng J, Bull T, Sumar N, Sheridan J, Dalton P, Finlayson C, Hermon-Taylor J. Detection of *Mycobacterium avium* subspecies paratuberculosis in surgical pathology blocks from patients with Crohn's disease in China. *World J Gastroenterology* 2000; 6(Suppl 3): 14 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/14.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.14>

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## Use of bioinformatics to model the structure of the cell surface fucosyl transferasegsd on *Mycobacterium avium subspecies paratuberculosis* (MAP) and develop specific anti-peptide antibodies for the immunolocalization of these pathogens

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### Abstract

**AIM:** To model the *gsd* sequence on the crystal structure of the homologue protein *spsA* from *Bacillus subtilis* and identify peptide regions suitable for the generation of specific anti-peptide antibody.

**METHODS:** Available bioinformatics programs were used to develop a predicted structure for *gsd*. A 15 residue peptide forming a surface loop in the carboxyterminal domain of *gsd* was synthesized and used to immunize rabbits. Specific antibody was purified by affinity chromatography on the corresponding synthetic peptide and tested in ELISA for peptide recognition and by immunostaining of *in vitro* cultured MAP.

**RESULTS:** A good structural prediction for *gsd* was obtained showing an aminoterminal GDP-fucose binding domain and a carboxy terminal

rhamnose binding domain. The peptide loop TGFSMRQGTDKFRK in the carboxy-terminal domain was synthesized. Affinity purified anti-peptide antibodies showed tight binding to the synthetic peptide in ELISA, and strong immunostaining of MAP which was enhanced by prior treatment of the target organisms with lysosyme. Control *M. avium* lacking the GS element was not stained.

**CONCLUSION:** The use of bioinformatics to select appropriate peptide regions on target molecules for the generation of specific antibodies is an effective strategy in the rapid development of reagents for the specific recognition and immunolocalization of MAP.

**Key words:** Mycobacterium avium; Paratuberculosis; Glycosyltransferases; Bacillus subtilis; Chromatography, affinity; Antibodies, anti-idiotypic

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## Bioinformatics and protein modelling of the GS element of *Mycobacterium avium subsp. paratuberculosis* (MAP) and GS-encoded proteins as drug targets and vaccine components

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### Abstract

**AIM:** To determine the function and cellular localization of GS encoded proteins and to assess their potential as drug targets and vaccine components.

**METHODS:** Bioinformatics software was used to predict the function of GS-encoded proteins and their location within MAP. Protein modelling software was used to build protein structures.

**RESULTS:** The gene *gsa* is a truncated glycosyl transferase and probably nonfunctional. *gsbA* and *gsbB* produce GDP fucose which is

methylated by *gsc* and acetylated by *mpa*. *gsd* is a fucosyl transferase which attaches fucose to subterminal rhamnose on cell surface glycopeptidolipid. *gsa*, *gsbA* and *gsbB*- and *gsc* are located within the cytoplasm. *mpa* is embedded in the plasma membrane with 10 transmembrane regions and a conspicuous extracellular loop. *gsd* is lipid linked and predicted to localize to the microbial cell surface.

**CONCLUSION:** GS encodes the biosynthetic machinery to give -MAP a surface coat of methylated and acetylated fucose which may contribute to its protease-resistant nature and ability to minimize immune recognition. The *gsbA/gsbB*-operon and *gsd* are promising drug targets and *gsd* is a good candidate component of a new class of anti-MAP vaccines.

**Key words:** *Mycobacterium avium*; Paratuberculosis; Glycosyltransferase; Vaccines; Genes; Protease inhibitors

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## Immune responses in mice to DNA vaccination using the C-terminus of p43 (p12) from *Mycobacterium avium subspcies paratuberculosis*

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### Abstract

**AIM:** To incorporate p12 in a plasmid under the control of the CMV promotor and test for the ability of the construct to produce specific immune responses in DNA immunized mice.

**METHODS:** A His tag fusion of the protein p12, was expressed in the prokaryotic expression vector (pQE) and the recombinant protein purified using Nickel chelate chromatography. His tagged p12 was sub cloned into the pBK CMV vector for expression in eukaryotic systems. Groups of six female balb/c mice were vaccinated with

either 50 µg im of the DNA pBK C MV-p12 or pBK-CMV vector alone at week 0, and boosted at 2 and 4 wk. ELISPO T assays (detection of p12 T-cell dependant IF-γ release) on mouse splenic cells were used to measure cell mediated immune responses and anti mouse IgG ELISAs to detect antibody response.

**RESULTS:** Significant CMI and humoral immune responses to recombinant p12 were detected in mice vaccinated with Pbk-CMV p12 vector compared to mice vaccinated with pBK-CMV vector alone. The mice remained well throughout the development of immunity to p12.

**CONCLUSION:** A DNA vaccine coding for a specific MAP protein will stimulate humoral and cell mediated immune responses in mice.

**Key words:** *Mycobacterium avium*; Paratuberculosis; DNA; Histocompatibility antigens class II; Immunity; Immunity, cellular

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## Characterisation of IS900 loci in *Mycobacterium avium* subspecies *paratuberculosis* and development of a rapid multiplex PCR typing system

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### Abstract

**AIM:** To characterize genomic DNA flanking IS900 insertions and develop a rapid Multiplex PCR IS900 Locus (MPIL) typing method for *MAP* reporting the presence or absence of the element at each locus.

**METHODS:** Genomic DNA flanking 14 of the 18 IS900 loci was sequenced and compared with database homologues. An MPIL typing method was developed using a common IS900 primer and individual locus specific primers designed to produce amplification products differing by about 50 bp which could be easily resolved

on a single gel. MPIL was applied to a panel of 81 *MAP* isolates and compared with RFLP profiles.

**RESULTS:** Genes flanking IS900 loci included homologues of transcription regulators, a sigma factor, a nitrate reductase, a polyketide synthase and an O6-methylguanine-methyl transferase. MPIL rapidly and consistently identified 10 individual types of *MAP* from the panel of 81 isolates, and distinguished between bovine and ovine strains. Nine MPIL types corresponded directly to single RFLP types previously identified.

**CONCLUSION:** IS900 insertions in *MAP* may affect the expression of genes critically associated with the pathogenic phenotype. MPIL typing can identify bovine and ovine strains independent of the need for culture and may contribute to studies of the molecular epidemiology of these difficult organisms.

**Key words:** *Mycobacterium avium*; Paratuberculosis; Polymerase chain reaction; Geneome; Gene expression

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## Effect of *TNF* gene-transfected LAK cells on the ascitic liver carcinoma-bearing mice

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### Abstract

**AIM:** To investigate the therapeutic effect of *TNF* gene transfected LAK cells on ascitic liver carcinoma bearing mice.

**METHODS:** *TNF* gene was transfected into murine LAK cells by

retrovirus. Low dose *TNF* gene transfected LAK cells and IL-2 were i.p. injected into murine model. Cytotoxicity of gene transfected LAK cells was studied *in vitro* growth and the survival time of murine model was observed.

**RESULTS:** *TNF* gene-transfected LAK cells secreted higher level of *TNF* than that of normal LAK cells or control gene-transfected LAK cells. The *in vitro* growth ability and cytotoxicity of *TNF* gene-transfected LAK cells were markedly inhibited by anti-*TNF* monoclonal antibodies. Significant therapeutic effect on ascitic liver carcinoma bearing mice was achieved.

**CONCLUSION:** *TNF* gene transfected LAK cells have therapeutic effect on ascitic liver carcinoma bearing mice.

**Key words:** Tumor necrosis factor; Kill cells, lymphokine-activated; Live neoplasms/therapy; Gene therapy; Transfection; Mice

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Lou GL, Cao XT, Min BH, Zhang WP, Meng PL. Effect of *TNF* gene-transfected LAK cells on the ascitic liver carcinoma-bearing mice. *World J Gastroenterology* 2000; 6(Suppl 3): 19 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/19.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.19>

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## Alterations in gastric mucin synthesis by *Helicobacter pylori*

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### Abstract

**AIM:** To determine the role of *Helicobacter pylori* in altering gastric mucin synthesis and define how this process relates to *H. pylori*-related diseases.

**METHODS:** Analyses of human gastric tissues using immunohisto-

chemistry and in situ hybridization document the role of *H. pylori* in altering the composition and distribution of gastric mucins.

**RESULTS:** These data indicate a decrease in the product of the MUC5 (MUC5AC) gene and aberrant expression of MUC6 in the surface epithelium of *H. pylori*-infected patients. A normal pattern was restored by *H. pylori* eradication. Inhibition of mucin synthesis including MUC5AC and MUC1 mucins by *H. pylori* has been established *in vitro* using biochemical and Western blot analyses. This effect is not due to inhibition of glycosylation, but results from inhibition of synthesis of mucin core structures. In vitro experiments using inhibitors of mucin synthesis indicate that cell surface mucins decrease adhesion of *H. pylori* to gastric epithelial cells.

**CONCLUSION:** Inhibition of mucin synthesis by *H. pylori in vivo* can disrupt the protective mucous layer and facilitate bacterial adhesion, which may lead to increased inflammation in the gastric epithelium.

**Key words:** Mucins; Glycoproteins; Gastric mucin/biosynthesis; Gastric mucosa; *Helicobacter pylori*; Glycosylation; *In vitro*; Immunohistochemistry; *In situ* hybridization

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## Real-time ultrasonic observation on the relationship between the cholagogic action of Yin Chen Hao Tang and gallbladder circadian rhythm

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### Abstract

**AIM:** To explore gallbladder circadian rhythm (GCR) and the cholagogic action of Yin Chen Hao Tang (YCHT).

**METHODS:** Ultrasonography of rabbit gallbladder at 17:00 to 19:00, 23:00 to 01:00, 05:00 to 07:00 and 11:00 to 13:00 showed

its maximum area (MA), dilatation rate (GDR) and systole rate. Its movement circadian rhythm (MCR) and the effect of YCHT on gallbladder and the relationship with time were observed and evaluated.

**RESULTS:** The results showed that gallbladder area changed with time, which varied from 11:00 to 13:00 > 23:00 to 01:00 and 05:00 to 07:00 > 17:00 to 19:00 ( $P < 0.01$ ,  $F = 9.13$  vs control by analysis of variance). The cholagogic action at 23:00 to 01:00 and 17:00 to 19:00 was better than that at 11:00 to 13:00 and 05:00 to 07:00.

**CONCLUSION:** The gallbladder movement action (GMA) showed markedly circadian rhythm. The cholagogic action of YCHT at 23:00 to 01:00 and 17:00 to 19:00 is better. Traditional Chinese Medicine Bureau Foundation of Hebei Province, No. 96048.

**Key words:** Gallbladder/ultrasonography; Circadian rhythm; Cholagogues and cholagogics; Yin Chen Hao Tang

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## Quality control of PSE and the study of portal hemodynamics changes after PSE

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### Abstract

**AIM:** To explore a method to control splenic embolic volume precisely for partial splenic embolization (PSE) to improve the validity and safety of PSE, and study the portal hemodynamic changes after PSE.

**METHODS:** Gelfoam particles of identical standard ( $2 \times 2 \times 1.6$  mm) were used as embolic material to measure the splenic radiographic parameters SAI (spleen activity index) was measured scanning with radioisotope technetium- $^{99m}\text{Tc}$  sulfur colloid and splenic embolic volume was calculated with the following formula: splenic embolic volume = [SAI (pre-PSE) - SAI (post-PSE)]/SAI

(pre-PSE)  $\times 100\%$ . The regression equation of gelfoam particles in splenic embolic volume and splenic radiographic parameters was calculated using SAS (statistical analysis system) software (version 6.02). Portal hemodynamic changes were examined by color Doppler ultrasound.

**RESULTS:** The amount of gelfoam particles was correlated with splenic embolic volume and top bottom length of spleen, regression equation was achieved:  $Y = 5.77X_1 + 15.19X_3 - 164.75$ , (multi-regression was used, significant level  $P = 0.15$ ). Y: number of gelfoam particles used,  $X_1$ : splenic embolic volume (%),  $X_3$ : top-bottom length of spleen (cm). The diameter and blood flow volume of spleen and portal vein and the peak velocity of spleen vein all decreased after PSE. The decreased parameters were positively correlated with splenic embolic volume.

**CONCLUSION:** By calculating gelfoam particles for PSE, splenic embolic volume could be controlled within the effective and safe limit. PSE could decrease the high dynamic circulating state of portal system effectively.

**Key words:** Spleen/radionuclide imaging; Partial splenic embolization; Embolization, therapeutic; Hemodynamics; Ultrasonics; Quality control; Gelatin sponge, absorbable; Portal system

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## The effect of arsenic trioxide on human hepatoma cell line BEL-7402 cultured *in vitro*

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### Abstract

**AIM:** To study the effect of a wide range of concentration of arsenic trioxide on human hepatoma cell line BEL-7402 and its mechanism.

**METHODS:** The BEL-7402 cells were treated with arsenic trioxide (a final concentration of 0.5, 1 and 2  $\mu\text{mol/L}$ , respectively) in various durations or for 4 successive days. The cell growth and proliferation were observed by cell counting and cell-growth curve. Morphologic changes were studied under electron microscopy. Flow

cytometry was used to assay cell DNA distribution and the protein expression of *Bcl-2* and Bax was detected by immunocytochemical method.

**RESULTS:** The cell growth was significantly inhibited by the different concentrations of arsenic trioxide as revealed by cell counting and cell growth curve. Arsenic trioxide treatment at 0.5, 1 and 2  $\mu\text{mol/L}$ , resulted in a sub-G1 cell peak. The decreased G0/G1 phase cell and the increased percentage of S phase cell were observed by flow cytometer, suggesting that the inhibiting effect of arsenic trioxide on BEL-7402 cell lay in G0/G1 phase cell. Apoptosis related morphology, such as intact cell membrane, nucleic condensation, apoptotic body formation, can be seen under the electron microscopy. High protein expression level of *Bcl-2* and Bax was detected in 1 and 2  $\mu\text{mol/L}$  arsenic trioxide treated cells, but that of Bax was more significant. Arsenic trioxide treatment at 0.5  $\mu\text{mol/L}$  resulted in higher expression level of *Bcl-2* and lower expression level of Bax compared with control ( $P_1 \leq 0.01$ ,  $P_2 < 0.01$ ).

**CONCLUSION:** Arsenic trioxide not only inhibited the proliferation but also induced apoptosis of human hepatoma cell line BEL-7402. The induced apoptosis effect of 1 and 2  $\mu\text{mol/L}$  arsenic trioxide was relative to the expression level of *Bcl-2* and Bax.

**Key words:** Arsenic trioxide; Human hepatoma cell line; Apoptosis; Gene expression; *In vitro*; Genes suppressor, tumor

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Yang YL, Xu HY, Gao YY, Wu QL, Gao GQ. The effect of arsenic trioxide on human hepatoma cell line BEL-7402 cultured *in vitro*. *World J Gastroenterology* 2000; 6(Suppl 3): 23 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/23.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.23>

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## Effect of pentagastrin on IL-1 $\beta$ induced inhibition of insulin secretion in neonatal rat islets of Langerhans

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### Abstract

**AIM:** To observe the effect of pentagastrin (G-5) on IL-1 $\beta$  induced inhibition of insulin secretion in newborn rat islet of Langerhans.

**METHODS:** Islets of Langerhans of 3 to 5 day old rats were isolated by collagenase digestion. The islets were maintained free floating in culture medium RPMI-1640, containing 10% (V/V) calf serum, and distributed randomly in 96-well plastic plates (6 wells in each group). There are 15 islets per well in 0.2 mL culture medium. The islets were kept at 37 °C in mixed gases of 5% CO<sub>2</sub> and 95% humidified air for the time required by the experimental design. Three experiments were performed in this study. (1) IL-1 $\beta$  induced inhibition of insulin secretion in isolated islets of Langerhans. (2) Effect of G-5 on IL-1 $\beta$  induced inhibition of insulin secretion. And (3) Effect of G-5 on the functional repair of islet B-cells inhibited by

IL-1 $\beta$ . Accumulated and glucose stimulated insulin secretion was measured by radioimmunoassay in all studies. Data are presented as  $\bar{x} \pm s$ . Differences between groups were analyzed using the Student's *t* test. *P* < 0.05 was considered significant.

**RESULTS:** The function of islet B cells, which has been received IL-1 $\beta$  treated for 24 h, was dose-dependently inhibited. The accumulated and glucose stimulated insulin secretion was significantly lower than that of the control group (*P* < 0.05). The inhibitory effect of IL-1 $\beta$  on islet B cells can be partially reversed by G-5. Accumulated and stimulated insulin secretion of G-5 0.6 ng/mL and 0.8 ng/mL groups was significantly higher than that of IL-1 $\beta$  treated alone group (*P* < 0.05). The function of islet B-cells, which received IL-1 $\beta$  treatment for 24 h, could partially recover after G-5 treatment for another 24 h. But accumulated and glucose stimulated insulin secretion in groups with G-5 treatment for 10 h groups had no significant difference as compared with IL-1 $\beta$  treated alone group (*P* > 0.05).

**CONCLUSION:** The present results indicate that G-5 may have a protective effect against the toxicity of IL-1 $\beta$  on islet B-cells.

**Key words:** Pentagastrin; Interleukin-1; Islet, Langerhans; Insulin; Diabetes mellitus, insulin-dependent

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Xu JT, Yan M, Yao YW, Wu R. Effect of pentagastrin on IL-1 $\beta$  induced inhibition of insulin secretion in neonatal rat islets of Langerhans. *World J Gastroenterology* 2000; 6(Suppl 3): 24 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/24.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.24>

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## Gut-derived endotoxemia: One of the factors leading to production of cytokines in liver diseases

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### Abstract

**AIM:** To understand the relationship between levels of endotoxin and cytokines in serum and to clarify the cause of cytokines change in liver diseases.

**METHODS:** Serum endotoxin level was determined by quantitative limulus amoebocyte lysate chromogenic assay in 89 cases of acute and chronic liver diseases. Cytokines (TNF- $\alpha$ , IL-2, IL-6, IL-8, G-CSF) were assayed by ELISA. Patients were divided into two groups based on oral administration of lactulose or not. Mean concentration of endotoxin and cytokines was compared before and 20 d after lactulose treatment.

**RESULTS:** The highest serum level of endotoxin was found in patients with cirrhosis ( $69.3 \pm 23.6$  pg/mL) and the lowest in patients

with chronic hepatitis ( $28.4 \pm 7.9$  pg/mL), the moderate in patients with acute hepatitis ( $44.6 \pm 14.3$  pg/mL) ( $P < 0.01$ ). Serum levels of TNF- $\alpha$ , IL-2, IL-6, IL-8, G-CSF were higher in patients with acute hepatitis than those with chronic hepatitis ( $P < 0.05$ ). No difference was noted between chronic hepatitis and cirrhosis ( $P > 0.05$ ). In all cases, serum levels of endotoxin were positively correlated with the concentration of TNF- $\alpha$  ( $r = 0.555$ ,  $P < 0.05$ ), IL-6 ( $r = 0.531$ ,  $P < 0.01$ ), IL-8 ( $r = 0.440$ ,  $P < 0.05$ ) and G-CSF ( $r = 0.440$ ,  $P < 0.05$ ), but not with IL-2 ( $r = 0.101$ ,  $P < 0.05$ ). The decrease of serum levels of endotoxin was greater in patients taking lactulose than controls ( $25.6 \pm 14.4$  pg/mL,  $n = 49$  cases vs  $10.9 \pm 9.5$  pg/mL,  $n = 40$  cases,  $P < 0.01$ ), the recovery from endotoxemia was higher in group with lactulose treatment than in controls (94.7%,  $n = 19$  vs 36.4%,  $n = 22$ ,  $P < 0.01$ ). The decrease of endotoxin resulted in decreases of TNF- $\alpha$ , IL-6, IL-8, G-CSF, ALT, AST and TB.

**CONCLUSION:** Endotoxemia is common in liver diseases, which could induce production and release of cytokine from monocytes and macrophages and has harmful effects on hepatocytes. Treatment with lactulose could decrease serum levels of endotoxin and cytokines, suggesting that lactulose could protect liver cells from injury by reducing the absorption of endotoxin in intestine.

**Key words:** Endotoxins; Cytokines; Liver diseases; Serology; Lactulose

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## Study on modified cold storage method of rat livers with self-made HYD solution

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### Abstract

**AIM:** To investigate the effect of cold preservation on rat livers by modified storage method with self-made HYD solution.

**METHODS:** The modified method was that the vascular bed of rat livers was expended with an additional 20 mL, 30 mL and 40 mL self-made HYD solution/100 g liver. After resection of the liver, the extra HYD solution expressed as % liver weight was entrapped *via*

portal infusion by tying off the supra and infra hepatic inferior vena cava. According to the amount of extra HYD solution, 40 rats were randomly divided into four groups: control group with conventional storage method, 20% group, 30% group and 40% group. The preservation effect of modified storage method was compared with that of conventional storage method using isolated perfused rat liver model.

**RESULTS:** Bile production and all the indices of hepatic microcirculation including portal perfused pressure, endothelin in the effluent, Trypan blue distribution time and histology in modified method groups were significantly superior to those in control group ( $P < 0.05$ ). The liver enzymes in 30% group were markedly lower than those in control group ( $P < 0.05$ ). The preservative efficiency of rat liver in 30% group was the best among the modified method groups.

**CONCLUSION:** The cold preservative efficiency with modified storage method is obviously superior to that with conventional storage method. It is suggested that the modified cold storage method is effective and may have potential for liver preservation.

**Key words:** Liver; rats; Endothelin-1; Cryopreservation; Regional perfusion

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## Relationship between HBxAg and Fas/FasL in patients with hepatocellular carcinoma

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### Abstract

**AIM:** To assess the relationship between HBV X-gene, X-gene product and Fas/FasL which mediate hepatocellular apoptosis in patients with hepatocellular carcinoma.

**METHODS:** Tissue from 34 patients with hepatocellular carcinoma was tested for the expression of HBxAg. Quantitative ELISA assay was used to detect sFas; and sFasL and PCR were used to detect the HBV X-gene in sera from 30 patients with hepatocellular carcinoma, 32 patients with liver cirrhosis and 20 normal controls.

**RESULTS:** The positive expression of HBxAg, Fas and FasL in carcinoma tissue was 97.06%, 85.29% and 100%, respectively. The positive signal was mainly presented in the plasma, and all of these three positive staining may appear in the same area. Redit analysis showed that there was no significant difference among these

three positive staining ( $P > 0.05$ ). The mean levels of sFas in sera from hepatocellular carcinoma, liver cirrhosis and normal controls were  $722.97 \pm 321.12$ ,  $801.90 \pm 419.94$  and  $224.07 \pm 148.23$ , respectively, showing that sFas levels in patients with hepatocellular carcinoma and liver cirrhosis were significantly elevated than that in normal controls ( $P < 0.01$ ). The mean levels of sFasL in sera from hepatocellular carcinoma, liver cirrhosis and normal controls were  $152.27 \pm 7.99$ ,  $162.97 \pm 12.40$  and  $154.99 \pm 6.96$ , showing that sFasL level in patients with liver cirrhosis was significantly higher than that in patients with hepatocellular carcinoma and normal controls ( $P < 0.01$ ). HBV X-gene was found to be positive in sera of 30% patients with hepatocellular carcinoma; HBV X-gene was found to be positive in sera of 43.75% of patients with liver cirrhosis. There was no significant difference in sFas/sFasL level between HBV X-gene positive patients and HBV X-gene negative patients ( $P > 0.05$ ).

**CONCLUSION:** The expression of HBxAg and Fas/FasL in the tissue of hepatocellular carcinoma seemed to be almost the same, but relation between cause and effect is unclear. The detection of sFas and sFasL in patient sera may reflect the state of apoptosis mediated by Fas/FasL system. Our data showed that HBV X-gene expression in sera seemed to have no relation to sFas/sFasL level; however, these data also suggested that some patients with negative HBsAg in sera might have integrated HBV X-gene in liver tissues, and therefore X-gene is detectable in those patient sera.

**Key words:** Liver neoplasms; Gene expression; Apoptosis; Liver cirrhosis; Serodiagnosis; Hepatitis B virus; Polymerase chain reaction

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## DNA methylation and folate metabolism in gastric cancer

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### Abstract

**AIM:** To investigate DNA methylation status in gastric cancer and its relationship with folate metabolism.

**METHODS:** Serum before operation, the gastric mucosa from the lesion, and the surrounding area in patients with gastric cancer and the remote normal appearing mucosa of the resected stomach were collected respectively. The serum folate, mucosal tissue folate, S-adenosylmethionine (SAM), S-adenosylhomocysteine (SAH), and the DNA methylation levels were determined.

**RESULTS:** The tissue folate was significantly lower than that in ulcers, especially in the surrounding and normal mucosa ( $0.38 \pm 0.13$ ,  $0.50 \pm 0.17$  vs  $0.53 \pm 0.50$ ,  $0.79 \pm 0.82$  ng/mg protein,  $P < 0.01$ ), and it decreased gradually in the lesion areas. The DNA methylation status showed similar decreasing trend in cancers compared with the methylation increasing trend in ulcers. The SAM level ascended in the lesion areas with a higher concentration in cancer mucosa ( $63.5 \pm 43.0$  vs  $25.9 \pm 11.9$  nmol/g tissue,  $P < 0.01$ ). The accumulation of SAH in the surrounding and normal mucosa of cancers was observed ( $17.3 \pm 24.6$ ,  $15.5 \pm 8.6$  vs  $14.6 \pm 4.2$ ,  $10.0 \pm 1.9$  nmol/g tissue,  $P < 0.05-0.01$ ). There were significantly negative correlations between tissue folate and the SAM and SAH levels in the three areas.

**CONCLUSION:** Patients with gastric cancer have the regional folate deficiency in the stomach mucosa, although the serum folate level remains normal. This disturbs the local SAM and SAH metabolism with accumulation of SAH and DNA hypomethylation which has been known as an important molecular mechanism for carcinogenesis. Folic acid can modulate DNA methylation status by its effect in one carbon group metabolism and thus affect the process of the carcinogenesis. Therefore, this may be an access for the prevention of gastric cancer.

**Key words:** Stomach neoplasms; DNA methylation; Folic acid/metabolism; Gastric mucosa; Stomach neoplasms/prevention and control

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## Preliminary clinical report of 2LC reagent for early gastric cancer diagnosis

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### Abstract

**AIM:** To explore the feasibility of early gastric cancer diagnosis with 2 LC reagent, and to establish a gross exploration method for early gastric cancer with the reagent based on the feasibility.

**METHODS:** Add 30 mg or 03 mL 2LC reagent into 5 mL urinary sample, observe the change of urinary, and analyze the sample on DAO-JIN-UV-260 Ultraviolet analyzer at 190-700 nm, then, record the absorbance at 490 nm. To determine best stage of sample, take some samples on 8:00 pm and 8:00 am, respectively. To select best dosage of 2LC, take the test with different concentrations. To test the effect of operation, conduct the experiment in different stages before and after the operation for the patients with gastric cancer. Two parallel samples were taken each time in the whole

experiment.

**RESULTS:** Red compound produced by some reactions when the 2LC reagent was added into the urinary of patients with gastric cancer, and the urine had obvious absorptivity at about 490 nm (positive). There was almost no reaction in the urine of other samples (negative). A total of 172 samples were tested, the positive rate of gastric cancer was above 90% in 48 samples before the operation, in which 8 advanced gastric cancer and 9 early stage gastric cancer samples behaved stronger positive reaction. The positive rate of 118 other samples was less than 10%. The urine taken in the morning was batter than that in the evening. The best dosage of 2LC was 6 mg/mL for crystal and 0.05 mL/mL for liquid. The test results of gastric cancer patients with postoperative tumor recrudescence or transfer were positive, and the others were negative.

**CONCLUSION:** There is a high feasibility in manipulation simplification, specificity and receptivity of 2LC reagent for early gastric cancer detection, and the characteristics mentioned above will be improved based on the advanced raw material used and the style of the 2LC reagent. It is an effective gross exploration method for early gastric cancer with the 2LC reagent, and can determine the effect of operation for the gastric cancer.

**Key words:** Stomach neoplasms; Early detection; 2LC reagent; Mass screening; Urine

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## Experimental and clinical study on interventional therapy with sclerotic complex agents for hepatic cysts

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### Abstract

**AIM:** To study the effect of sclerotic complex agents (SCA) on the gallbladder wall of hybrid rabbits, and its therapeutic effect in hepatic cysts.

**METHODS:** The SCA containing tetracycline and dexamethasone was injected into the gallbladder of rabbits to compare its action with those of normal saline and absolute ethylalcohol on the gallbladder wall. The therapeutic effects of SCA and absolute ethylalcohol on hepatic cysts were observed.

**RESULTS:** Abnormal changes were not found in the tissue cells of gallbladder in normal saline group. But in absolute ethylalcohol group,

a large amount of oozing fluid and blood appeared, the absorption process was slow, and the fibrous tissue proliferated scarcely. In SCA group, there was less oozing fluid, no blood in the gallbladder, and the absorption was active and the fibrous tissues grow obviously. In clinical practice, SCA possesses much advantage in the treatment of hepatic cysts, by which the cysts closed promptly, the exudation reduced from early stimulation, and no relapse occurred. The cure rates at the third, sixth, twelfth and twenty-fourth month were 65.1%, 96.2%, 98.1%, and 99.1% respectively; while in the control group were 10.8%, 36.0%, 67.6% and 88.3% respectively. The difference was significant ( $P < 0.01$ ,  $P < 0.01$ ,  $P < 0.01$ ,  $P < 0.05$ ). After the observation for 24 mo, no relapse occurred in the SCA group, but 7 (6.3%) cases relapsed in control group ( $P < 0.05$ ).

**CONCLUSION:** The sclerotic agents should be used in sequence, *i.e.* a high concentration was administered to reduce and destroy the epithelium of the cysts, and to promote fiber tissue adhesion and then the remaining drug was used to stimulate epithelium to absorb the exudation. This combined regimen was proved to be an ideal and effective method for treating hepatic cysts clinically.

**Key words:** Cysts/therapy; Liver diseases/therapy; Sclerotherapy; Sclerosing solutions; Rabbits; Tetracycline; Dexamethasone

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## The clinical significance and rational evaluation of early nutritional support in severe head-injured patients

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### Abstract

**AIM:** To evaluate the clinical significance of early nutrition support in severe head injured patients.

**METHODS:** One hundred and forty cases ( $GCS \leq 8$ ) were randomly divided into 5 groups: each one had 28 cases with similar data in age, sex, GCS or prognosis ( $P > 0.05$ ,  $\chi^2 = 0.43$ ). Group A were given early parenteral nutrition (PN) and enteral nutrition (EN); group B were given early PN and EN after 1 wk; group C were given PN only for more than 2 wk; group D were given early PN only and group E were given traditional delayed EN. The clinical nutritional data, the rate of complication and the

prognosis were observed and statistical comparison ( $t$  test and Chi square test) was made.

**RESULTS:** The severe head-injured patients could get nourishment from different ways at early stage. Groups A and B had better outcomes and their clinical data such as blood glucose, blood total globin, blood albumin, lymphocyte amount were superior to that of groups D and E ( $P < 0.05$ ,  $t = 2.12$ ) and were the same as that of group C ( $P > 0.05$ ,  $t = 0.98$ ), the rate of complication and the prognosis of patients were better than that of the other groups. Group C had similar nutritional data in early stage, but had higher rate of complication and infection after 2 wk than group A or B ( $P < 0.01$ ,  $\chi^2 = 7.38$ ). Group A had lower rate of gastric hemorrhage.

**CONCLUSION:** Early rational nutritional support had significant effect in the severe head-injured patients. The nutritional support of early PN and EN could afford nourishment, protect and improve the gastroenteric function, reduce the rate of complication. So it is a rational nutritional support.

**Key words:** Brain injuries; Enteral nutrition; Parenteral nutrition, total

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## The study of trace elements in the hair of patients with esophageal carcinoma in highrisk area

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### Abstract

**AIM:** To study the change of trace elements in the hair of patients with esophageal carcinoma and the role of trace elements in its development and progress.

**METHODS:** The hair of 60 normal people and 126 patients was collected and was divided into groups according to the patients' pathologic changes. The atomic absorption method and fluorescence method were used to measure the trace elements of copper, zinc,

iron, calcium and selenium.

**RESULTS:** Zinc in the hair of various patients: a remarkable difference was found between normal people ( $182 \text{ mg}\cdot\text{kg}^{-1}$ ) and the patients ( $103\text{-}81.6 \text{ mg}\cdot\text{kg}^{-1}$ ) ( $t = 3.79$ ,  $P < 0.01$  Duncan' new multiple range method). There was a certain difference between simple hyperplasia and cancer ( $t = 3.21$ ,  $P < 0.01$ ). As for copper, a great difference existed between normal people ( $12.01 \text{ mg}\cdot\text{kg}^{-1}$ ) and patients with dysphagia ( $15.16 \text{ mg}\cdot\text{kg}^{-1}$ ) and cancer ( $17.02\text{-}17.15 \text{ mg}\cdot\text{kg}^{-1}$ ) ( $t = 2.43$ ,  $P < 0.05$ ). No change of zinc and copper was observed in cancer patients ( $t = 1.61$ ,  $P > 0.05$ ). The ratio of zinc to copper increased with the development of pathologic change. The selenium levels in patients ( $0.46\text{-}0.67 \text{ mg}\cdot\text{kg}^{-1}$ ) was below that of normal people ( $1.03 \text{ mg}\cdot\text{kg}^{-1}$ ), while iron and calcium levels in the patients decreased with the development of pathologic process.

**CONCLUSION:** Both zinc and copper play an important role in the pathologic change of esophageal carcinoma. Zinc and copper in the hair changed with development of the pathologic process. Zinc revealed positive correlation ( $r = 0.889$ ,  $P < 0.01$  while copper showed negative correlation ( $r = 0.921$ ,  $P < 0.01$ ). The ratio of copper to zinc in the hair is of great diagnostic value.

**Key words:** Esophageal neoplasm/etiology; Trace elements; Zinc; copper; Selenium

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## Will intraoperative cholangiography prevent biliary duct injury in laparoscopic cholecystectomy?

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### Abstract

**AIM:** To evaluate the role of intraoperative cholangiogram (IOC) in preventing biliary duct injury during laparoscopic cholecystectomy.

**METHODS:** Injury location, mechanism, time of detection, treatment outcome, and whether an intraoperative cholangiogram was performed were evaluated in 31 cases of bile duct injuries.

**RESULTS:** Cholangiograms were done in 22 cases, but they were

misinterpreted in 3 of them. In 12 of 19 misidentified cases, the cholangiogram was interpreted correctly, and the injury detected intraoperatively. Primary laparoscopic repair or open repair and T tube drainage solved the problem. No long-term complications occurred. However, in 3 of the 19 cases the cholangiogram was misinterpreted and in 4 of the 19 cases no cholangiogram was performed. Three of the seven patients required a cholangioenteric anastomosis. In 2 cases the diagnosis was delayed and one of these required a two-stage procedure. Morbidity was increased. Three cases of clip impingement of the common duct had delayed diagnoses, and two of them had injuries. Thermal injury developed in 4 cases who had cholangiograms.

**CONCLUSION:** Routine IOC plays no role in inducing, preventing, detecting, or minimizing any of the injuries due to clips, lacerations, or electrocautery. IOC does not prevent injuries due to duct misidentification either. Careful interpretation of IOC would prevent injuries and avoid an open operation.

**Key words:** Cholangiogram; Bile ducts/injuries; Laparoscopy; Cholecystectomy/complications; Intraoperative cholangiogram

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## Combined expression of gastrointestinal hormone SP and anti-apoptosis gene *Bcl-2* in gastric carcinoma

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### Abstract

**AIM:** To study the combined expression of gastrointestinal hormone substance P and anti-apoptosis gene *Bcl-2* in gastric carcinoma and its significance.

**METHODS:** Substance P and *Bcl-2* protein expression was examined by the SP immunohistochemical method in 33 cases of gastric carcinoma, 17 adjacent the carcinoma and 13 normal gastric mucoma.

**RESULTS:** Positive expression of SP in gastric carcinoma was higher than that of both adjacent and normal mucosa ( $P < 0.001$ ). There was no statistical difference in the positive expression between adjacent and normal mucosa ( $P > 0.05$ ). The expression of *Bcl-2* both in gastric carcinoma and adjacent tissues were higher than that of normal gastric mucosa ( $P < 0.05-0.01$ ). But the positive expression of *Bcl-2* had no statistical significance between gastric carcinoma and adjacent tissues.

**CONCLUSION:** Both gastrointestinal hormone SP and *Bcl-2* gene have synergistic expression in gastric carcinoma, indicating that they all take part in the occurrence of gastric carcinoma. Abnormal expression of *Bcl-2* gene occurred in benign gastric pathological changes, once they become carcinoma, the positive expression of cell is no more increased, possibly because that there is no more increase of the intensity of *Bcl-2* inhibition of cell apoptosis.

**Key words:** Stomach neoplasms; Gastrointestinal hormones; Gastric mucosa; Substance P; Apoptosis; Immunohistochemistry

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Feng YL, Zhang QX, Li SL. Combined expression of gastrointestinal hormone SP and anti-apoptosis gene *Bcl-2* in gastric carcinoma. *World J Gastroenterology* 2000; 6(Suppl 3): 34 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/34.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.34>

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## Effect of Welcome on experimental gastric precancerous lesions in rats

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### Abstract

**AIM:** To observe the therapeutic effect of Welcome on gastric mucosal dysplasia in rats.

**METHODS:** Rats with gastric mucosal dysplasia induced by MMNG

and heat-damage were treated with Welcome, a kind of traditional Chinese medicine compound which has the functions of replenishing qi to invigorate the spleen, and of nourishing the liver and kidney and clearing away heat and toxic materials, the control rats were treated with saline and tretinoin.

**RESULTS AND CONCLUSION:** The results showed Welcome could obviously block the mutagenic action of MNNG and prevent the occurrence of gastric mucosal dysplasia of rats. the Natural Science Foundation of the Scientific and Technological Commission of Zhejiang Province, No. 943017

**Key words:** Neoplasms/TCD therapy; Gastric mucosa/pathology; Precancerous conditions; *Welcome*; Carcinogens; Rats; Animal, laboratory

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## Current status of the diagnosis and treatment of acute severe pancreatitis

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### Abstract

Acute severe pancreatitis (ASP) was habitually called acute hemorrhagic necrotizing pancreatitis. But according to the pathological findings of our 139 surgical cases, 59.7% belonged to necrotizing type, while hemorrhagic necrotizing type only accounted for 23.0%. Involvement of pancreas is not necessarily diffuse, 3.7% only affected pancreatic tail. The incidence of the disease is highest in 41-60 year age group. Early recognition of severe type of the disease is always an emphasis in clinical studies. CT scanning is the main diagnostic tool used. Clinical diagnostic criteria offer some help in clinical practice. Banks' criteria is more commonly used in western countries instead of Ranson criteria in the past. For clinical evaluation of the progress of the disease, APACHEII scoring method is commonly used. Classification of CT findings is helpful in judging the severity of the disease. Once the diagnosis was definitely established, should it be treated surgically or managed by medical way? The pendulum had swung for many years. Our current consensus is "combined treatment system". That is: patients with uninfected pancreatic necrosis should receive non-surgical treatment. The success rate is over 85%. Cases of infected necrosis went downhill, vigorous treatment should be given immediately.

Otherwise, late stage operation should by all means be considered and wait for localization of the infection with the hope of complete cure after single drainage operation. "Obstructive biliary pancreatitis" and "Ruptured pancreatic abscess causing peritonitis" are indicated for immediate operation. Cure rate by non surgical treatment is significantly increased, with a success rate of operative treatment of 80%. Medical treatment is administered by the combined traditional Chinese and Western medicine. Besides all the necessary supportive and symptomatic treatment, three major aspects of treatment should

be specially emphasized: (1) pancreatic infection. According to the bacterial spectrum, concentration of antibiotics in the pancreas and drug sensitivity test, we advocate the use of quinolone class antibacterial agents such as imipenem, Ofloxacin, ciprofloxacin, *etc* as drug of first choice. (2) Inhibition of pancreatic secretion using Gabexate mesilate or synthetic analogue of somatostatin. The two analogues that are widely used in China are Octreotide (Sandostatin) introduced to China earlier; and the 14-peptide somatostatin (Stilamin) introduced later but also has been used for some years. There were reports about the benefits and drawbacks of the two and sometimes quite controversial. According to our experience in using these two analogues, we have not met with serious side effects of Octreotide as reported in the western literatures. The action of Stilamin on sphincter of Oddi is causation of relaxation, but the action of Octreotide on it was quite controversial. Some reported about its spasmodic action on the sphincter. We have studied in dog experimentation and proved that Sandostatin can significantly lower the basal pressure of sphincter of Oddi. Our consensus of their use in ASP is that either can be used as available, except in most severe cases, we prefer Stilamin. However, Sandostatin has some merits in the following conditions: It can be given hypodermically or intramuscularly. It is more suitable for outpatients with milder disease. Chronic pancreatitis with acute flare up. (3) Treatment with traditional Chinese medicine: according to the Chinese theory of the pathogenesis -"wetness and heat stagnated at middle focus", the principle of treatment is "relieving liver, adjusting gas, clearing heat, drying wetness, getting through and driving down". We have made a prescription consisting of several important ingredients, in the form of decoction. Since the 1980s, we have studied a few Chinese herbal medicines separately. They were all proved to have promising effect. In conclusion, in ASP, we advocate combination of Western and traditional Chinese medical treatment.

**Key words:** Pancreatitis/diagnosis; Pancreatitis/therapy; Tomography, X-Ray computed; Surgery, operative; Antibiotics; Somatostatin

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## Protective effects of antioxidants on hepatic ischemia damage after portacaval shunt in dogs

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### Abstract

**AIM:** To study the role of lipid peroxides reaction on hepatic ischemia damage and the protective effects of antioxidants (TMP, co-Q10).

**METHODS:** Twenty-four adult dogs were performed portacaval shunt and randomly put into 3 groups: group 1 (control group); 8 dogs with portacaval shunt (PCS group); group 2: 8 dogs with portacaval shunt and only given antioxidants TMP (ligustrazine) (PCS + TMP group); group 3: 8 dogs with portacaval shunt and given antioxidants in combination with co-Q10, TMP and co-Q10 (PCS + TMP + co-Q10 group). Drug usage: TMP, 50 mg/kg/isolation day; coenzyme Q10, 1.5 mg/kg/isolation day; PCS + TMP, given up at the end of 4 wk after operation; and PCS + TMP + co-Q10, given up at the end of 8 wk after operation. The experiment indices: superoxide dismutase (SOD), malondialdehyde (MDA), ALT, AST, AKP were all measured before operation, and 8 wk after operation. The liver tissues were obtained in the 4<sup>th</sup> week and 8<sup>th</sup> week respectively after operation and the changes of hepatic structures were observed under light and electronic microscope.

**RESULTS:** There were obvious increase of MDA and decrease of SOD

in PCS group, which was remarkably different from pre-operation ( $P < 0.01$ ). In PCS + TMP group, there was no difference between pre-operation and within 4 wk after operation ( $P > 0.05$ ). But it was remarkably different from PCS group ( $P < 0.01$ ). Beginning from the 5<sup>th</sup> week after operation, we stopped TMP (ligustrazine), as a result, the obvious increase of MDA, rapid decrease of SOD were found, but not different from PCS group ( $P > 0.05$ ). In PCS + TMP + co-Q10 group, MDA increased slightly, and SOD decreased, but it was superior to that in PCS and PCS + TMP groups. The data in PCS + TMP + co-Q10 group had statistical significance compared to that in PCS + TMP group ( $P < 0.05$ ) during 4 wk after operation; but from the 5<sup>th</sup> to 8<sup>th</sup> week, there was a remarkable difference ( $P < 0.01$ ). The results of ALT, AST and AKP showed remarkable difference between PCS + TMP + co-Q10, PCS group ( $P < 0.01$ ) and PCS + TMP compared to PCS + TMP + co-Q10 ( $P < 0.05$ ). After stopping TMP, PCS + TMP were compared with PCS + TMP + co-Q10 ( $P < 0.01$ ). The changes in liver structures were fatty degeneration, atrophy and necrosis; decrease in rough surfaced endoplasmic reticulum (RER), mitochondrial swelling, partial mitochondria fusion, disappearance of mitochondrial crista, diminution of Golgi body. The structures of liver cells in PCS + TMP and PCS + TMP + co-Q10 groups were superior to that in PCS group; but in the 8<sup>th</sup> week after operation, the liver structural changes had no difference between PCS + TMP and PCS group. The results of light electronic microscopy in PCS + TMP + co-Q10 were better than that in PCS and PCS + TMP groups.

**CONCLUSION:** The over-activated lipid peroxides reaction may be one of the important factors of hepatic ischemia damage after portacaval shunt; combined use of the antioxidants can enhance the protection from the hepatic ischemia damage.

**Key words:** Hepatic ischemia damage; Antioxidants; Portacaval shunt; Lipid peroxides reaction; Malondialdehyde; Superoxide dismutase

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## Effects of electrical stimulated hypothalamic paraventricular nucleus on gastric ischemia-reperfusion injury in rats

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### Abstract

**AIM:** To investigate the effect and regulation of electrical stimulation on the paraventricular nucleus (PVN) of hypothalamus using rat gastric ischemia-reperfusion injury (I-RI) induced ulcer model.

**METHODS:** Adult male Sprague-Dawley rats weighing 150-250 g were used. The surgically prepared rats were kept fasting for 24 h, but allowed free access to water. They were then anesthetized with urethane (1 g/kg), the celiac artery was clamped with a small clip (holding force 145 g) for 30 min, reperfusion was established by removal of the clamp, 60 min after reperfusion, the rats were killed and their stomachs were removed and perfused intragastrically with 100 mL/L formalin for 30 min, and the ulcer index was scored according to Guth *et al*. The PVN was obtained according to atlas of Paxinos and Watson. The electrodes and cannula were inserted

into the PVN for the electrical stimulation, electrical injury and PVN injection.

**RESULTS:** In control group (30 min ischemia and 60 min reperfusion only), ulcer index was  $184.70 \pm 60.80$  ( $n = 8$ ); in electrical stimulation s of PVN (0.2 mA, 0.4 mA and 0.6 mA) + I-RI group, ulcer indexes were  $102.40 \pm 20.39$ ,  $85.37 \pm 39.76$  and  $45.00 \pm 19.04$  ( $n = 8$ ) respectively. Compared with the control group there was significant difference ( $P < 0.01$ ) in a dose dependent manner. In electrical lesion of bilateral PVN + I-RI group, ulcer index was greatly increased ( $230.00 \pm 47.30$ ,  $n = 8$ ). Microinjection of 3% L-glutamate 0.5  $\mu$ L into PVN could produce similar effect to that of PVN stimulation (ulcer index  $75.14 \pm 37.18$ ,  $n = 8$ ). A further study indicated that the MDA, pepsin activity and gastric acidity were reduced by PVN stimulation but no obvious changes of gastric juice volume, total acid output and gastric mucus barrier were observed.

**CONCLUSION:** The PVN is one of the specific CNS areas capable of protecting the gastric ischemic-reperfusion injury in rats, and related to decreased MDA, pepsin activity, gastric acidity, while gastric juice volume, total acid output and gastric mucus do not likely play any important role in it.

**Key words:** Paraventricular nucleus, hypothalamus; Gastric ischemia reperfusion; Electric stimulation; Rat

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Zhang JF, Zhang YM, Yan CD. Effects of electrical stimulated hypothalamic paraventricular nucleus on gastric ischemia-reperfusion injury in rats. *World J Gastroenterol* 2000; 6(Suppl 3): 38 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/38.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.38>

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## Model of gastric precancerous lesions for rats

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### Abstract

**AIM:** To establish an ideal model of gastric precancerous lesions for rats.

**METHODS:** Fifty rats were fed with carcinogen MNNG for 35 wk

and heat-plaste at 60 °C for 20 wk, the pathological changes were observed. Data in the groups were analyzed by Ridit test.

**RESULTS:** The occurrence rate of dysplasia in rats due to MNNG and heat damage was 65%, which was obviously higher than that due to MNNG only. The differences between the two groups were significant.

**CONCLUSION:** The animal model made by MNNG and heat damage was an ideal one which could be used to investigate the pathologic mechanism of gastric precancerous lesions.

**Key words:** Gastric mucosa, precancerous conditions; Stomach neoplasms, carcinogens; Carcinogenicity test, rats

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## Formation and evaluation of numerical scoring parameters for assessing histological activity in various viral hepatitis

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### Abstract

**AIM:** To evaluate the diagnostic parameters of characteristic pathologic change in the liver biopsy specimens, we developed a numerical scoring diagnostic standard.

**METHODS:** Ten of the eleven categories of characteristic pathologic lesions appearing in acute hepatitis and 11 categories in chronic hepatitis were selected. Each of them was graded 3 scales, then the essential score and scale score were set up. Adding up to all the numerical scores of individual components, formed the total scores of histological chronic activity index (HCAI) and histological acute activity index (HAAI). One thousand and eight patients with various liver diseases were studied, and compared with conventional

readings and Knodell'HAI through F analysis and  $q$  test.

**RESULTS:** The HAAI of acute, subacute, and chronic severe hepatitis was  $43.56 \pm 9.08$ ,  $51.63 \pm 12.13$ , and  $65.45 \pm 17.51$  respectively. There was significant difference between each other ( $P < 0.01$ ). Their HCAI was  $14.44 \pm 8.31$ ,  $57.39 \pm 10.98$ , and  $58.14 \pm 12.24$  respectively. HAAI of mild, moderate, and severe chronic hepatitis was  $18.57 \pm 7.00$ ,  $26.43 \pm 7.49$ , and  $35.58 \pm 11.47$  respectively ( $P < 0.01$ ), and HCAI was  $13.2 \pm 6.90$ ,  $40.29 \pm 10.99$ , and  $50.02 \pm 9.78$  respectively. There was significant difference ( $P < 0.01$ ). The HAAI of active liver cirrhosis and silent liver cirrhosis was  $64.96 \pm 16.60$  and  $31.17 \pm 9.07$  respectively, the difference being significant ( $P < 0.01$ ), and HCAI was  $66.00 \pm 9.62$  and  $69.84 \pm 8.93$ , with no significant difference ( $P > 0.05$ ).

**CONCLUSION:** The diagnostic standard of histological activity index that we set up, was more useful as either an alternative or supplement to the conventional terminology and Knodell'HAI.

**Key words:** Hepatitis viruses; Biospy; Histology; Histological chronic activity index; Histological acute activity index

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## Study of orthotopic transplantation model of human gastrointestinal cancer and detection of micrometastases

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### Abstract

**AIM:** To establish a relevant animal model of human gastrointestinal cancer, which can be used for repetitive investigations and may improve our understanding of carcinogenesis and cancer metastasis.

**METHODS:** Intact tissue of human colorectal and pancreatic cancer was transplanted in nude mice. The biological characteristics of the original and corresponding transplanted tumors were investigated by HE staining, PAS staining and immunostaining. The metastases in livers and lungs of the nude mice were investigated by immunostaining with biotinylated mab KL-1 and by RT-PCR using CK20 specific primers.

**RESULTS:** Nine of 16 surgical specimens grew in the nude mice subcutaneously and/or orthotopically (4 of 6 colorectal and 5 of 10 pancreatic cancer). Tumor cell content of the specimens and freezing of tissue specimens are important factors influencing the growth of

transplanted tumor. In the group of fresh tumor tissues with greater than 50% tumor cell content, transplantation rate was 100% (3 cases of pancreatic cancer and 3 cases of colorectal cancer). The orthotopically transplanted tumors resembled the original tumor morphologically and biologically, including TAA expression such as CEA by immunohistochemistry, and CEA level in the serum of mice. Ki-67 labeling index and the expression of TAA especially K-ras, 17-1A and RA-96, were associated with the potential of tumor growth in nude mice. Micrometastases in the lungs and livers of tumor bearing mice could be detected by immunostaining with biotinylated mab KL-1 and CK20-specific RT-PCR.

**CONCLUSION:** An orthotopic transplantation model for human colon and pancreatic cancer in nude mice has been established. The sensitive detection methods with CK-immunohistochemistry and CK20-RT-PCR were also established to study xenotransplanted human cancer and its metastatic cancer cells in the liver and lung of nude mice. This study may be helpful in understanding the mechanism of cancer metastasis and in developing new diagnostic methods and therapeutic strategies for metastases.

**Key words:** Gastrointestinal neoplasms; Neoplasm metastasis; Polymerase chain reaction; Mice, Nude; Immunohistochemistry; Orthotopic transplantation

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## The function of apoptosis and protein expression of *Bcl-2*, *p53* and C-myc in the development of gastric cancer

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### Abstract

**AIM:** To understand the rule and possible function of apoptosis and protein expression of *Bcl-2*, *p53* and C-myc in chronic gastritis, gastric ulcer, non-classic nonproliferation of gastric mucosa and gastric cancer.

**METHODS:** Apoptosis was detected by using in situ terminal labelling (TUNEL). The protein expression of *Bcl-2*, *p53* and C-myc was detected by immunohistochemical method.

**RESULTS:** The indexes of apoptosis in chronic active gastritis, gastric ulcer, mild and severe non-classic proliferation of gastric mucosa, early and progressive gastric cancer were  $16.8\% \pm 12.3\%$ ,  $24.1\% \pm 20.0\%$ ,  $19.3\% \pm 16.4\%$ ,  $15.7\% \pm 15.2\%$ ,  $10.1\% \pm 9.1\%$  and  $6.3\% \pm 6.0\%$ , respectively. The index of progressive gastric

cancer was lower than that of early gastric cancer and non-classic proliferation of gastric mucosa ( $P < 0.05$ ). The positive rate of *Bcl-2* protein was 9.4%, 27.6%, 52.9%, 75.0%, 83.3% and 46.7%, respectively. The positive rate of *Bcl-2* of early gastric cancer was higher than that of progressive gastric cancer. The positive rates of *p53* protein of severe non-classic proliferation, early and progressive gastric cancer were 25.0%, 33.3% and 63.3%, respectively. The positive rate of *p53* of progressive gastric cancer was higher than that of early gastric cancer and non-classic proliferation ( $P < 0.05$ ). In Lauren types, the index of apoptosis, protein expression rates of *Bcl-2*, *p53* and C-myc of intestinal type were  $8.3\% \pm 7.2\%$ , 38.9%, 77.7% and 56.6%, while that of diffuse type were  $5.1\% \pm 4.9\%$ , 58.3%, 50.0% and 8.3%, respectively. All markers had statistical difference between two types ( $P < 0.05$ ).

**CONCLUSION:** Apoptosis was inhibited stepwise in the development of non-classic proliferation of gastric mucosa to early gastric cancer and then to progressive gastric cancer. The high expression of *Bcl-2*, *p53* and C-myc was related to the development of gastric cancer. *Bcl-2* might play an important role in early gastric cancer while *p53* and C-myc act mostly in middle and late stage gastric cancer. The Lauren typing of gastric cancer is closely related to the index of apoptosis and expression of *Bcl-2*, *p53* and C-myc. the Medical Research Foundation of Guangdong Province, No. 1997423

**Key words:** Stomach neoplasms; Genes, *p53*; Apoptosis; Gastric mucosa; Immunohistochemistry; Genes, myc

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Xu AG, Li SG, Liu JH, Gan AH. The function of apoptosis and protein expression of *Bcl-2*, *p53* and C-myc in the development of gastric cancer. *World J Gastroenterology* 2000; 6(Suppl 3): 42 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/42.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.42>

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## Gastric secretion and serum gastrin level in chicken

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### Abstract

**AIM:** To report a new method designed to collect gastric juice from chicken, and determine the basal level of gastric acid and serum gastrin, and the effect of pentagastrin on gastric acid output.

**METHODS:** White Leghorn chickens, weighing 1.3-1.7 kg, deprived of food 24 h prior to experiment, were anaesthetized with pentobarbital sodium (60 µg/kg, im). A reverse double lumen

perfusion cannula was introduced into the distal portion of the proventriculus through the crop incision. The perfusate drained out from the cannular outlet was collected to determine the gastric acid. Gastric acid volume was determined by titration with 0.01 N NaOH. Serum gastrin levels were measured by radioimmunoassay using gastrin assay kit.

**RESULTS:** Acid output in the basal state was  $0.041 \pm 0.006$  mmol/L/10 min, or  $0.246 \pm 0.031$  mmol/L/h. The serum gastrin concentration was  $78.27 \pm 19.19$  pg/mL ( $n = 22$ ). Three groups were injected pentagastrin at three dose level, 20 µg/kg, 60 µg/kg, 120 µg/kg, respectively. The maximum output in three groups was 275%, 181% and 167% of their control acid output. Isoproterenol at a dose of 0.3 mg/kg produced obvious inhibition of pentagastrin stimulated gastric secretion. The effect of isoproterenol on gastric secretion was completely abolished by propranolol, a β-receptor antagonist, but was not done by practolol, another β1-receptor antagonist.

**CONCLUSION:** The basal gastric acid output of chicken was high. Pentagastrin remarkably stimulated gastric acid secretion, which could be inhibited by isoproterenol.

**Key words:** Chickens; Gastric juice; Gastric acid; Gastrins/blood; Pentagastrin; Isoproterenol

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Yao YW, Wang LS, Zhang ZF, Tu HY, Liu JZ, Yan M, Wu R. Gastric secretion and serum gastrin level in chicken. *World J Gastroenterology* 2000; 6(Suppl 3): 43 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/43.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.43>

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## Effect of abnormal protection on coronary artery disease in patients with liver cirrhosis

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### Abstract

**AIM:** To probe into the effect of abnormal protection on coronary artery disease (CAD) in patients with liver cirrhosis (LC).

**METHODS:** Fifty two cases of LC associated with diabetes mellitus (DM) and 63 cases of simple DM were compared prospectively. Blood biochemistry, blood viscosity and ECG were examined carefully every

three months, and the three-year morbidities CAD in both groups were monitored dynamically.

**RESULTS:** There were significant decreases in blood biochemistry and viscosity in LC group as compared with those in control ( $P < 0.05$  or  $0.01$ ), and there was a more significant decrease in ST-T abnormality rate in LC group than in the simple DM group ( $P < 0.05$ ). As a result, the three-year morbidity of CAD in LC group was 64% lower than in the control 1 group.

**CONCLUSION:** There is truly an abnormal protection against CAD in patients with LC.

**Key words:** Liver cirrhosis; Coronary disease; Blood glucose; Blood viscosity; Hemorheology; Estrogens

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Chen Y, Sheng JF. Effect of abnormal protection on coronary artery disease in patients with liver cirrhosis. *World J Gastroenterology* 2000; 6(Suppl 3): 44  
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## Cloning of gcys-18 overexpressed in Chinese gastric carcinoma and its clinical significance

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### Abstract

**AIM:** To isolate, clone and sequence gcys-18 overexpressed in gastric carcinoma.

**METHODS:** gcys-18 was isolated from differential display gel between GC7901 and GES-1 by mRNA differential display PCR, and was cloned into T vector. As a probe gcys-18 was hybridized to total

RNAs of GC7901 and GES-1, and was sequenced. Its sequence was screened against GeneBank. According to the obtained sequence, a pair of primers were designed and used to examine 26 specimens of gastric cancers and corresponding paracancerous tissues by quantitative reverse transcriptase PCR.

**RESULTS:** gcys-18 was isolated and cloned, and confirmed to be expressed higher in GC7901 than in GES-1 by RNA dot blot; gcys-18 was 416 bp, and partly similar to HEK5, and its accepted number in GeneBank was AF071057; 18 out of 26 specimens of gastric cancers and 2 out of corresponding paracancerous tissues were examined by RT-PCR.

**CONCLUSION:** gcys-18 may be an important expressed sequence tag in gastric cancer, and takes part in progression of gastric carcinoma.

**Key words:** Stomach neoplasm; Differential display; Polymerase chain reaction; Gene

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## Detection of telomerase activity and cytology in diagnosis of cardiac cancer

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### Abstract

**AIM:** To investigate the diagnostic significance of cytology and telomerase activity in the exfoliated cells of cardia obtained from endoscopic brushing in the cardiac cancer.

**METHODS:** The techniques of the qualitative TRAP-silver staining and quantitative TRAP-PCR-ELISA were employed to detect telomerase activity in the exfoliated cells of cardia obtained from endoscopic brushing in 72 cases with cardiac lesions, cytological

diagnosis was made at the same time.

**RESULTS:** Telomerase activity with cardiac cancer group ( $1.521 \pm 0.192$ ) was significantly higher than that with cardiality group ( $0.065 \pm 0.014$ ). Positive rate of telomerase activity detected in cardiac cancer group (88.89%) was significantly higher than that with cardialitis group (11.11%), the former was significantly higher than cytological examination (77.78%). The diagnostic rate of cardiac cancer reached 93.33% if telomerase activity and cytology were examined at the same time.

**CONCLUSION:** Cytology and telomerase activity in the exfoliated cardiac cells may be an effective and sensitive methods in the diagnosis of cardiac cancer. This research can be a basis for the mass screening of cardiac cancer. the National Natural Science Foundation of China, No. 39900177.

**Key words:** Stomach neoplasms/diagnosis; Cardiac/cytology; Telomerase; Exfoliated cell; Gastroscopy; Mass screening

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## Role of polyamines in gastrointestinal mucosal growth

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### Abstract

The polyamines [putrescine (PU), spermidine (SPD) and spermine (SPM)] are ubiquitous polycationic compounds found in all prokaryotic and eukaryotic cells, are essentially involved in a variety of regulatory steps during normal, adaptive, and malignant cell proliferation. Nearly four decades investigation about the polyamines contributed to the synthesis and decomposition of polyamines and the active and passive enzymes which regulate them at different levels. This review focuses on the sources and homeostasis of intracellular polyamines, the transport and role of the

polyamines in the growth of the gastrointestinal mucosa and their possible mechanism. We tried to point out the gaps remaining in the story and give a working hypothesis for the role of polyamines in gastrointestinal mucosal growth. We propose in the hypothesis that polyamine is a "key" to unlock the "door" of cell proliferation. How many "doors" between the "polyamine key" and the "real start" of proliferation? The polyamine might be the only key for cell proliferation. Another possibility is that polyamine is the first key and its "unlocking effect" resulting in getting another key for the next door in the proliferation chain, for example, proto-oncogenes. To decide whether polyamine is an intermediate step or just only one step of cell proliferation, the possible way is to keep polyamine to be a stimulus and find a way to deprive the function of proto-oncogene protein (or other possible gene expression product) to check the effect on the cell proliferation. Another important question is how polyamine can trigger the synthesis of DNA in virtual. Arabinose operon model may give us some ideas to investigate about that. And furthermore, it is necessary to pay attention to the relationship between polyamine and other cell proliferation regulator, like growth factor, chalone, cAMP, cGMP, *etc.* Further studies are needed to investigate the mechanism of polyamine acted on the gastrointestinal mucosal growth.

**Key words:** Polyamines; Spermidine; Spermine; Difluoromethylornithine; Ornithine decarboxylase; Gastrointestinal motility; Gastrointestinal mucosal growth

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## Immunohistochemical study on expression of cathepsin $\beta$ in gastric carcinoma

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### Abstract

**AIM:** To study the expression of cathepsin B in gastric carcinoma and its relationship with pathologic type.

**METHODS:** The cathepsin B expression in 54 specimens of human

gastric adenocarcinoma was studied by immunohistochemistry.

**RESULTS:** The cathepsin B expression was detected in 33/54 (61.1%) specimens of human gastric carcinoma and in 3/54 (5.6%) of normal tissue ( $P < 0.01$ ). There was no obvious correlation between the expression of cathepsin B and pathologic type of gastric adenocarcinoma.

**CONCLUSION:** There is a high expression of cathepsin B in human gastric adenocarcinoma.

**Key words:** Stomach neoplasms; Cathepsin B; Immunohistochemistry; Adenocarcinoma

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Lin WL, Chen CJ, Zhou HG. Immunohistochemical study on expression of cathepsin  $\beta$  in gastric carcinoma. *World J Gastroenterology* 2000; 6(Suppl 3): 48  
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## Effects of nitric oxide synthesis inhibitor in long-term treatment on hyperdynamic circulatory state in cirrhotic rats

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### Abstract

**AIM:** To investigate the effects of low dosage of nitric oxide synthesis (NOS) inhibitor NG-nitro-L-arginine methyl ester (L-NAME) in long-term treatment on hyperdynamic circulatory state in rats with cirrhosis.

**METHODS:** Cirrhosis model was induced in male SD rats by injection of 60% CCl<sub>4</sub> oily solution subcutaneously. Cirrhotic rats were treated with L-NAME (0.5 mg·kg<sup>-1</sup>·d<sup>-1</sup>) by gavage for two weeks. Mean arterial pressure (MAP), cardiac output (CO), cardiac index (CI), splanchnic vascular resistance (SVR), splanchnic blood flow (SBF) and serum NO levels were determined in L-NAME-

treated, L-NAME-untreated cirrhotic rats and controls by using 57 Co Labeled microsphere technique and a fluorometric assay, respectively.

**RESULTS:** Untreated cirrhotic rats had significantly lower MAP, SVR and higher PP, CO, CI, SBF and NO concentration than controls ( $14.42 \pm 0.47$  kPa vs  $17.05 \pm 0.34$  kPa,  $2.974 \pm 0.186$  kPa·mL<sup>-1</sup>·min<sup>-1</sup> vs  $4.234 \pm 0.118$  kPa·mL<sup>-1</sup>·min<sup>-1</sup>,  $1.665 \pm 0.067$  kPa vs  $1.123 \pm 0.096$  kPa,  $189.99 \pm 9.26$  mL/min vs  $135.5 \pm 3.55$  mL/min,  $55.89 \pm 1.82$  mL<sup>-1</sup>·mL<sup>-1</sup>·100 g<sup>-1</sup> BW vs  $39.68 \pm 1.64$  mL<sup>-1</sup>·mL<sup>-1</sup>·100 g<sup>-1</sup> BW,  $4.60 \pm 1.25$  μmol/L vs  $0.53 \pm 0.26$  μmol/L,  $P < 0.01$ , respectively). In treated cirrhotic rats, L-NAME significantly attenuated the increase of CO, CI, SBF, NO concentration and the decrease of MAP and SVR. In treated cirrhotic rats, L-NAME induced a marked decrement of NO concentration than untreated cirrhotic rats ( $1.471 \pm 0.907$  μmol/L vs  $4.204 \pm 1.253$  μmol/L,  $P < 0.01$ ).

**CONCLUSION:** The endogenous NO may play an important role in the changes of hemodynamics pattern in cirrhosis, and hyperdynamic circulatory state in rats with cirrhosis can be ameliorated by long term low dose L-NAME treatment.

**Key words:** Nitric oxide synthase; Hemodynamics; Fibrosis; Microsphere; Fluorometry; Rats

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## Relationship between non-and-hyporesponders to hepatitis B vaccine and their serum interleukine-2 or interleukine-6 levels

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### Abstract

**AIM:** To explore molecular biology developing mechanism of non and-hypo-responder.

**METHODS:** Thirty children (3-7 years old) were selected whose anti-HBs titres were lower than 10 min/mL and HBsAg, anti HBc were negative. 843 children were defined as non-and-hyporesponders. Control groups were 30 normal responders to HB vaccine. Experiment groups and control groups Peripheral venous blood was drawn in preservative-free heparin (25 U/mL), and unfractionated mononuclear cells were obtained by Ficoll gradient centrifugation. Cell suspensions were routinely incubated in complete culture medium at 37 °C for 1 h before cultured to eliminate cytophilic antibodies. Mononuclear cell concentration of cell suspensions must be geared to  $1 \times 10^5$  cells/mL with complete culture medium, taking these cell suspensions (1 mL) into flatbottom 24-well culture plates, then ConA 10 mg/L was added to wells and the plates were incubated at 37 °C in a humidified atmosphere of 95% air and 5% CO<sub>2</sub> for 48 h. This cell culture supernatants were removed to test tubes and level centrifugation (2000 rpm) for 10 min, upper liquid was samples of IL-2 or IL-6. IL-2 or IL-6 activity was measured by

CTLL-2 cells or 7TD1 cells toxin transfer test methods respectively. The results were expressed as stimulation index (SI) which represent the ratio of the mean counts per minute in quadruplicate well containing IL-2 (or IL-6) samples or IL-2 (or IL-6) standard solution to the mean counts per minute in quadruplicate wells containing cells and medium only.

**RESULTS:** Interleukin-2 (IL-2) mean activity ( $74.5 \pm 64.1$  U/mL) of the non-and-hyporesponders to hepatitis B vaccine in the 20 subjects was much less than that of the normal responder groups ( $298.0 \pm 101.1$ ) to hepatitis B vaccine ( $t = 5.23$ ,  $P < 0.01$ ); The correlation coefficient ( $r$ ) between the anti-HBs levels and IL-2 activity in the 20 normal response to HB vaccine was 0.68 ( $r = 0.68$ ,  $P < 0.05$ ). There was a positive correlation between the anti-HBs levels and IL-2 activity. Difference in interleukin-6 mean activity was noted in serum from subjects who responded to HB vaccine compared with those who failed to respond. The responder groups ( $58.98 \pm 16.4$ ) had a significantly higher IL-6 activity than the non-and-hypo-responder groups ( $30.10 \pm 12.4$ ) ( $t = 5.68$ ,  $P < 0.05$ ). The correlation coefficient of the IL-6 activity and titers of serum anti-HBs in the responder groups was 0.79 ( $P < 0.05$ ).

**CONCLUSION:** Some cytokines as IL-2 and IL-6 play an important role in the response to HB vaccine.

**Key words:** Hepatitis B virus; Hepatitis B/prevention and control; Hepatitis B antibodies; Hepatitis B surface antigens; Interleukin-2/blood; Interleukin-6/blood; Hepatitis B vaccine; Non-and-hypo-responder

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Kong LB, Gao DS, Mi XQ, Wang FL. Relationship between non-and-hyporesponders to hepatitis B vaccine and their serum interleukine-2 or interleukine-6 levels. *World J Gastroenterology* 2000; 6(Suppl 3): 50 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/50.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.50>

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## Effect of acupuncture on the IL2-IFN-NKC immunoregulatory system of mice with HAC grafting hepatocarcinoma

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### Abstract

**AIM:** To study the effect of acupuncture on the IL2-IFN-NKC immunoregulatory system and tumor inhibition of HAC grafting hepatocarcinoma mice models, and to provide the latest theoretical evidence of curing diseases immunologically with acupuncture.

**METHODS:** The 28 HAC-vaccinated BALB/C mice were randomly divided into a tumor-bearing controlled group and tumor-bearing group to be needed. For the latter group, the selected acupoints are Dazhui (DU, 14) and Zusanli (St, 36) which are localized according to the corresponding positions indicated in the comparative anatomy of animals. The mice in the group were needled once a day for 12 d with the supplementing and reducing methods, the frequency being 60 times/minute and the needles being retained for 2 min. The former group was treated in the same way as the latter except needling. Twenty-four hours after the last needling, the mice were

killed and the spleen taken out to prepare a cell suspension at required concentration, The IL-2 (MTT method) and NKC (colorimetric method) were determined respectively; the IFN (CPE microplate staining) was determined by using the serum separated from the mice's orbit blood; the tumor mass was taken and weighed with an analytical balance (1/1000) to calculate the tumor inhibition rate according to the formula.

**RESULTS:** In the tumor-bearing group after having been needled, the activity of IL-2 (OD value), the titer of IFN (U/mL), the soluble rate of NKC (%) and the tumor weight were respectively  $1.3542 \pm 0.226$ ,  $50 \pm 0.12$ ,  $33.19 \pm 4.01$  and  $70.88 \pm 22.8$ , while those corresponding items in the controlled group were  $1.1049 \pm 0.028$ ,  $3.1 \pm 0.22$ ,  $21.58 \pm 2.77$  and  $112.45 \pm 21.1$ . When all the concerned items were compared with, the difference was obvious ( $P < 0.01$ ), showing the IL-2, NKC and IFN of the tumor-bearing group after being needled were greatly increased, and the tumor weight is much decreased (inhibition rate 43.06%). The difference between groups was studied by Student's *t* test.

**CONCLUSION:** Acupuncture can strengthen the positive immunoregulatory function of the IL2-IFN-NKC system of the HAC bearing mice with hyp immunity.

**Key words:** Acupuncture; HAC grafting hepatocarcinoma; Interleukin-2; Interferon; Killer cell, natural

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## Expression of nitric oxide synthase protein and gene in the splanchnic organs of liver cirrhosis and portal hypertensive rats

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### Abstract

**AIM:** To investigate the expression of endothelial NO synthase (eNOS), inducible NO synthase (iNOS) protein and eNOS mRNA gene in the splanchnic organs of liver cirrhosis and portal hypertensive rats.

**METHODS:** In control and CCl<sub>4</sub> induced liver cirrhotic rats, the expression of eNOS and iNOS proteins was detected by immunohistochemical method, and eNOS mRNA was detected by in

situ hybridization.

**RESULTS:** The expression of eNOS protein and eNOS mRNA increased in most organs of the cirrhotic rats, including bronchial and alveolar epithelial cells, renal tubular epithelial cells and mesenchyma, endothelial and adventitial cells of aorta and superior mesenteric artery, whereas no significant increase of iNOS protein was found. In the hepatic tissue, NOS protein and eNOS mRNA were present in mesenchymal cells and vessel adventitial cells, no difference was observed in the expression between control and cirrhotic rats.

**CONCLUSION:** The expression of NOS varied in region. In splanchnic organs and vasculars there was an increased expression of eNOS which induced aplanchnic vasodilation and increased the inflow of portal vein, while in the liver tissue and blood vessel showed no increased expression, which may be associated with increased intrahepatic vascular resistance.

**Key words:** Nitric oxide synthase; Liver cirrhosis; Hypertension, portal; Immunohistochemistry; Gene expression; Rats

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Feng ZJ, Feng LY, Sun ZM, Song M, Yao XX. Expression of nitric oxide synthase protein and gene in the splanchnic organs of liver cirrhosis and portal hypertensive rats. *World J Gastroenterology* 2000; 6(Suppl 3): 52 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/52.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.52>

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## Changes of IL-6 and relevant cytokines in patients with hepatocellular carcinoma and their clinical significance

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### Abstract

**AIM:** To study the changes of interleukin(IL)-6, IL-2, sIL-2R and TNF in patients with hepatocellular carcinoma (HCC) and their clinical significance.

**METHODS:** IL-6, IL-2, sIL-2R and TNF were detected by avidin-biotin-system enzyme linked immunosorbent assay (ELISA), double-sandwich ELISA respectively in 60 patients with HCC and 36 patients

with liver cirrhosis (LC) and 66 healthy persons.

**RESULTS:** The levels of IL-6, sIL-2R and TNF increased, but IL-2 level was lower in patients with HCC than that in normal controls (NC) ( $t$  test,  $t = 8.21, 4.71, 3.87, 2.13, P < 0.01$  or  $0.05$ ). IL-6 level in HCC was 10 fold higher than NC, and also much higher than LC. IL-6 level was higher in later stage than that in earlier stage. There was a positive correlation between IL-6 and sIL-2R, TNF, while no positive correlation was found between IL-2 and IL-6, sIL-2R in HCC.

**CONCLUSION:** The remarkably higher level of IL-6 is helpful for the early diagnosis of HCC.

**Key words:** Liver neoplasms/immunology; Interleukin-6/analysis; Interleukin-2/analysis; Tumor necrosis factor/analysis; Cytokines; Liver cirrhosis

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## Predictive value of gastric intramucosal pH for critical patients

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### Abstract

**AIM:** To observe the predictive value of gastric intramucosal pH (pHi) for critical patients.

**METHODS:** The pHi of 32 ICU patients was measured with a self-made gastrointestinal tonometer, and the APACHE II score was determined simultaneously.

**RESULTS:** pHi of the nonsurvivors was significantly lower than that of the survivors ( $P < 0.05$ ). The pHi was remarkably higher in the nonsepsis group than in the sepsis group ( $P < 0.01$ ). Only in multiple organ failure groups, pHi was found statistically lower ( $P < 0.05$ ).

**CONCLUSION:** pHi may be the most simple, reliable, sensitive and accurate parameter to indicate the adequacy of tissue oxygenation, and it may be widely used in ICU monitoring in near future.

**Key words:** Gastric mucosa; Multiple system organ failure; APACHE II score; Patients

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Tao H, Jing BW, Li SZ, Zhang XY. Predictive value of gastric intramucosal pH for critical patients. *World J Gastroenterol* 2000; 6(Suppl3): 54 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/54.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.54>

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## Psychological characteristics and rehabilitation of enterostomized patients

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### Abstract

**AIM:** To analyze the psychological characteristics of enterostomized patients, identify the effective methods in order to improve the psychological rehabilitation of these patients and promote their quality of life.

**METHODS:** Questionnaires were filled up by 293 enterostomized patients pre and post-operatively to identify their psychological characteristics. One group ( $n = 45$ ) of post-enterostomized patients were taught to take care of stoma by irrigation, the others ( $n = 248$ ) to merely look after the colostomy bag.

**RESULTS:** The psychological characteristics were identified as disbelief, fear, desperation or anxiety pre-operatively; as unstable mood, irritable, afraid, sense of lost body image or depression post-operatively; as low self-esteem, self isolation, or despondent in rehabilitative period respectively. Results revealed that the patients need psychological support both pre-operatively and post-operatively. Meanwhile, proper stoma care is of the same importance. After irrigation 1-3 mo regularly, most of the 45 regular irrigating patients were free from skin irritation problems; 40 (89%) patients had daily or bidaily motions; and most of them showed an absence of fecal leakage or gases, and they hardly suffer from bad odors. Some of them even only partially use the colostomy bag. These patients were more confident to reinstate to their previous daily life. Only 5 (11%) patients had irregular bowel movements. Enterostomized patient club and out patient consultation clinic are beneficial to improve their psychological rehabilitation.

**CONCLUSION:** Careful pre-operative psychological support can help patients' postoperative adoption. The psychological rehabilitation of the patients can speed their physical recovery. Proper stoma care and early reinstatement into previous social life are also important to improve the patients' rehabilitation.

**Key words:** Enterostomy/rehabilitation; Enterostomy/psychology; postoperative care; Life quality; Preoperative care

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## Comparison between intravenous and peritoneal route on liver targeted uptake and expression of plasmid delivered by Glyco-poly-L-lysine

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### Abstract

**AIM:** To compare the effects of intravenous route and peritoneal route on liver targeted uptake and expression of plasmid delivered by glyco-poly-L-lysine (G-PLL).

**METHODS:** The plasmid pTM/MMP-1 which could be expressed in eukaryotic cells was bound to the galactose-terminal G-PLL, and then

was transferred into Wistar rats by intravenous and intraperitoneal injection respectively. Afterwards the expression and distribution of the plasmid were observed at different time points by *in situ* hybridization and immunohistochemistry.

**RESULTS:** The plasmid could be expressed obviously in 24 h after being transferred *in vivo* by both intravenous and intraperitoneal route. One week later the expression began to decrease, and still could be observed three weeks later. Although both the intravenous and intraperitoneal route could deliver the plasmid to liver targetly, the effect of the former was better as compared with that of the latter.

**CONCLUSION:** Intravenous route was better for liver targeted uptake and expression of G-PLL-bound plasmid than peritoneal route.

**Key words:** Intravenous route; Intraperitoneal route; Glyco-poly-L-lysine; Liver targeted uptake; Plasmid

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## Research on the antitumor effect of Zhenhuang injection

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### Abstract

**AIM:** To study the antitumor effect of Zhenhuang Injection (ZHI) on the mice bearing transplanted tumor.

**METHODS:** The solid type of H22 transplantation hepatocarcinoma, ascitic type of S-180 sarcoma and ascitic type of L-1210 malignant lymphoma of mice were treated at three doses (crude drug 1.25

g/kg, 2.5 g/kg, 5.0 g/kg of body weight) of ZHI. The solid tumor group and ascitic tumor group were injected intravenously and intraperitoneally. The experiment was repeated three times.

**RESULTS:** The tumor-inhibition rate of H22 hepatocarcinoma in moderate and large doses was 30.23%-35.67% ( $P < 0.01$ ) and 46.36%-54.07% ( $P < 0.01$ ) respectively; the survival rate of ascitic type of S-180 sarcoma and ascitic type of L-1210 malignant lymphoma in large dose group was 77.23%-86.91% ( $P < 0.01$ ) and 75.42%-79.04% ( $P < 0.01$ ), respectively.

**CONCLUSION:** ZHI has a certain tumor inhibiting effect. Under the tolerant dose, the effect improves with the increase of dose.

**Key words:** Neoplasms/drug effects; Drug screening assays, antitumor; Liver neoplasms/drug therapy; Sarcoma/drug therapy; Lymphoma/drug therapy; Neoplasms/experimental

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## Detection of cancer cells in peripheral blood with nested RT-PCR and its significance in patients with gastric carcinomas

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### Abstract

**AIM:** To study the detection of micrometastasis in peripheral blood of patients with gastric carcinomas and its clinical significance.

**METHODS:** A cytokeratin 19 (CK19) specific nested reverse transcriptase-polymerase chain reaction (RT-PCR) assay was developed to detect CK19 expressing cancer cells, the sensitivity was determined by serial dilution method using CK19 expressing gastric cancer cells, the specificity was assessed by examining 12 negative controls and 12 positive controls. Then pre-operative peripheral blood from 42 patients with gastric cancer was detected and the relationship

between positive results and biological behavior was studied.

**RESULTS:** CK19mRNA was expressed in all the 12 gastric cancer tissues but not in peripheral blood from 12 healthy individuals; sensitivity of nested RT-PCR amplification for CK19mRNA was confirmed to be 1/106 by serial dilution method using human gastric cancer line SGC-7901; micrometastases in pre-operative peripheral blood were detected in 13 (30.9%) patients with gastric carcinomas, the frequency of micrometastasis in peripheral blood was significantly correlated with tumor size, depth of invasion and TNM stage ( $\chi^2$  test,  $P < 0.05$ ).

**CONCLUSION:** Nested RT-PCR amplification for CK19mRNA is a sensitive and specific method for the detection of micrometastases in peripheral blood in gastric cancer patients; pre-operative detection of micrometastasis in peripheral blood may be helpful in the prediction of tumor progression.

**Key words:** Stomach neoplasms; Micrometastasis; Veins; Keratin; Polymerase chain reaction; Oncogenes; Peripheral blood

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## Hypoplasia of exocrine pancreas with myocardial necrosis

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### Abstract

**AIM:** To study the clinical and pathological features of hypoplasia of exocrine pancreas with myocardial necrosis.

**METHODS:** One case of hypoplasia of exocrine pancreas with myocardial necrosis was autopsied. The clinical signs and pathological changes were analyzed.

**RESULTS:** A 15-mo-old boy with hypoplasia of exocrine pancreas was reported. The main clinical features were steatorrhea and marked underdevelopment. He died of acute heart failure after hospitalization. Autopsy showed that there were aplasia of exocrine portion and fatty metaplasia of pancreas, the myocardium revealed focal necrosis and scar formation.

**CONCLUSION:** Atrophy of exocrine pancreas and myocardial necrosis exist at the same time, suggesting that there may be some relationship between them. It was likely that the damaged pancreatic tissue released some active materials that may harm the myocardium or decrease pancreatic juice that results in lack of nutrient and myocardial necrosis.

**Key words:** Hypoplasia, exocrine pancreas; Myocardial disease; Adipose metaplasia; Pancreas

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## Quantitative analysis of CD15 antigen in human gallbladder carcinoma

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### Abstract

**AIM:** To study the clinicopathological significance of CD15 antigen expression and its contents in human carcinoma.

**METHODS:** CD15 expression and its contents in 45 cases of gallbladder carcinoma, 17 cases of gallbladder adenoma and 10 cases of chronic cholecystitis were evaluated by microwave LSAB immunohistochemical technique combined with image analysis.

**RESULTS:** Positive rate of CD15 and its integral absorbance (optic density) in the gallbladder carcinoma were 71% and  $4.0 \pm 3.2$  respectively, being significantly higher than 35% (6/17) and  $0.9 \pm 0.3$  in the gallbladder adenoma, 20% (2/10) and  $0.4 \pm 0.1$  in chronic cholecystitis ( $P < 0.05$ ,  $P < 0.01$ ). In grade II-III cancer, they were 90% (17/19) and  $5.4 \pm 1.7$ , being significantly higher than 58% (15/26) and  $2.2 \pm 3.1$  in grade I cancer ( $P < 0.05$ ,  $P < 0.01$ ). In lymph node positive cases, they were 88% (21/24) and  $6.5 \pm 3.5$ , which were significantly higher than 52% (11/21) and  $3.3 \pm 2.1$  in the negative ones ( $P < 0.025$ ,  $P < 0.01$ ).

**CONCLUSION:** CD15 expression and its contents could be involved in aggressiveness of gallbladder carcinoma and might be a useful indicator to evaluate the malignancy and biological features, and could be considered as a good prognostic predictor for patients with gallbladder carcinoma.

**Key words:** Carcinoma; Gallbladder neoplasms/pathology; CD15 antigen/metabolism; Immunohistochemistry; Image analysis

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Gu HP, Shang PZ, Su H. Quantitative analysis of CD15 antigen in human gallbladder carcinoma. *World J Gastroenterol* 2000; 6(Suppl3): 60 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/60.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.60>

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## Regulation of telomerase activity by recombinant human tumor necrosis factor *in vitro*

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### Abstract

**AIM:** To investigate the effect of recombinant human tumor necrosis factor (rhTNF) on telomerase activity in hepatoma cell line HepG2 and HepG1-6.

**METHODS:** TRAP-ELISA method was used to determine the

telomerase activity in HepG2 and HepG1-6 cells which were treated by different concentrations of rhTNF. In addition, the TERTLuc (800) plasmid was transiently transfected, which was inserted 800 bp of the human telomerase reverse transcriptase (hTERT) promoter, into HepG2 cells by Lipofect. Different concentrations of rhTNF were added into the culture media 2 h later, and the activity of the hTERT promoter was detected 48 h after transfection.

**RESULTS:** The telomerase activity of HepG2 was suppressed by rhTNF in a dose-dependent manner. The results also revealed that the activity of hTERT promoter was inhibited linearly with rhTNF at the dose of 10-1000 IU/mL.

**CONCLUSION:** Inhibition of the hTERT promoter expression by rhTNF may contribute to its anti-tumor activity.

**Key words:** Tumor necrosis factor; Telomerase activity; Liposomes; Transfection; Liver neoplasms; *In vitro*

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Xie WF, Lin Y, Zhang ZB, Zhang XR, Chen WZ, Zhang X, Shen JW, Wang H. Regulation of telomerase activity by recombinant human tumor necrosis factor *in vitro*. *World J Gastroenterol* 2000; 6(Suppl3): 61 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/61.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.61>

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## Gastric seromuscular patch for intrathoracic perforation repair

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### Abstract

**AIM:** To observe the effect of repair of intrathoracic esophageal perforation with gastric seromuscular patch.

**METHODS:** Twelve patients with intrathoracic esophageal perforation, none of whom were associated with carcinoma, underwent primary repair with a gastric seromuscular patch and omental pedicle flap between 1996 and 1999. Four perforations were iatrogenic and 8 were spontaneous. The interval from perforation to operation was less than 12 h in 4 patients, 12 to 24 h in 3, and more than 24 h in 5. The principle of repair included: (1) To expose health mucosa and submucosa for the primary repair. The leading edge of the mucosa is grasped and the adjacent esophageal

muscle is mobilized away from the submucosa until there is a 3 to 7 mm circumferential rim of normal submucosa. (2) The gastric seromuscular patch and omental pedicle flap require continuity of the right gastric piple, omental vessels and the rami. (3) To assure the blood flow of the esophagus when the necrotic mediastinal and esophageal tissue are debrided, the normal esophageal tissue often extends well beyond the 3/4 diameter of the esophagus. And (4) The mediastinal pleural is not closed in order to drain. The catchers nasogastric tube decompression of the stomach is continued until the postoperative ileus resolves.

**RESULTS:** Eleven of the 12 patients underwent primary repair, one patient had leak at the site of repair and died.

**CONCLUSION:** Meticulous repair of an intrathoracic esophageal perforation using a gastric seromuscular patch is the preferred approach regardless of the duration of the injury.

**Key words:** Esophageal perforation/therapy; Combination gastric seromuscular patch; Omental pedicle flap; Esophagectomy; Thoracotomy

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## Prospective study of nosocomial infection in 848 cases of liver diseases

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### Abstract

**AIM:** To study the nosocomial infection in the patients with liver diseases and its risk factors.

**METHODS:** A prospective survey of nosocomial infection in 848 patients with various liver diseases was carried out in our hospital for a 24-mo period.

**RESULTS:** Incidence of nosocomial infection in patients with liver diseases was 9.20%, nosocomial infection rate in severe hepatitis was significantly higher than in mild and moderate liver diseases. Infection of respiratory tract accounted for 44.33%. Infection rate in abdominal cavity, intestinal tract, gallbladder and bile ducts, oral region, and other regions was 15.46%, 12.37%, 8.25%, 7.22% and 12.37%, respectively.

**CONCLUSION:** The factors related to nosocomial infection were the severity of liver diseases, cellular immunological condition, Co-infection of hepatitis virus, severe accompanying diseases, improper medical manipulations and use of broad spectrum antibiotics. Nosocomial infection obviously affects the prognosis of liver diseases.

**Key words:** Liver diseases; Cross infection; Risk factors; Prognosis

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## How to prolong the survival time of postoperative rectal cancer and to prevent its recurrence

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### Abstract

**AIM:** To explore the method to prolong the survival of patients with postoperative rectal cancer and to prevent its recurrence.

**METHODS:** To analyze the reasons of recurrence after curative resections for rectal cancer of 399 patients.

**RESULTS:** Ninety out of 399 patients who received curative excision died of relapse of the tumor. Pelvic recurrence was found in most of the patients followed by liver and pulmonary metastasis. The survival time in Dukes'A was the longest and in Dukes'C the shortest. The survival period was 12 mo longer in the patients receiving pre-operative radiotherapy than that did not. Inadequate excision of the primary tumor or the draining lymph nodes was the main cause for local recurrence.

**CONCLUSION:** Adequate surgery and adjuvant therapy are the most effective methods to prolong the survival of patients with postoperative rectal cancer and to prevent its recurrence.

**Key words:** Colorectal neoplasms/surgery; Survival rate; Recurrence; Chemotherapy, adjuvant

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## Clinical evaluation of several tumor markers in the diagnosis of primary hepatic cancer

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### Abstract

**AIM:** To evaluate the significance of alpha fetoprotein (AFP), gamma-glutamyltransferase (GGT), Carcinoembryonic antigen (CEA) and carbohydrate antigen 125 (CA125) in diagnosis of primary hepatic cancer.

**METHODS:** Thirty six patients with liver carcinoma (male 26, female 10, aged 29-72 years), 6 with hepatic metastasis of gastrointestinal cancer (all male, aged 37-69 years), 62 with benign liver diseases (male 53, female 9, aged 32-71 years) and 222 without liver diseases (male 152, female 70, aged 22-76 years) were studied. Blood samples were taken by venipuncture. Serum was separated and frozen at -20 °C until the analysis was made. AFP, CEA and CA125 were measured by RIA.

**RESULTS:** Serum AFP in liver cancer ( $476.3 \pm 181.4 \mu\text{g/L}$ ) was significantly higher than that in hepatic metastasis of gastrointestinal

cancer, benign liver diseases and nonhepatic diseases ( $P < 0.01$ ). Serum GGT in liver cancer was  $621.1 \pm 289.9 \text{ w/L}$ , significantly higher than that in the other groups ( $P < 0.05$ ). CA125 level in liver cancer ( $236.3 \pm 127.2 \text{ U/L}$ ) was markedly higher than that in benign liver diseases and nonhepatic diseases ( $P < 0.01$ ), but no significantly difference was found in hepatic metastasis of gastrointestinal cancer ( $219.4 \pm 143.7 \text{ U/L}$ ). Serum CEA in liver cancer ( $8.8 \pm 2.1 \mu\text{g/L}$ ) was markedly lower than that in hepatic metastasis of gastrointestinal cancer ( $32.7 \pm 7.2 \mu\text{g/L}$ ) ( $P < 0.01$ ). The sensitivity of AFP, GGT, CA125 and CEA in the diagnosis of liver cancer was 72.2%, 88.9%, 63.9% and 11.1% respectively; their specificity was 93.1%, 71.1%, 78.2% and 65.8% respectively. The diagnostic sensitivity and specificity of simultaneous detection of AFP, GGT and CA125 in liver cancer were 91.7% and 88.4% respectively.

**CONCLUSION:** AFP is superior to GGT, CA125 and CEA in the diagnosis of liver cancer; simultaneous detection of AFP, GGT and CA125 might increase the diagnostic sensitivity and specificity of liver cancer.

**Key words:** Liver neoplasms/diagnosis; Tumor markers, Biological; Gamma-glutamyltransferase; Carcinoembryonic antigen; Alpha globulins; Serodiagnosis

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Li JY, Huang Y, Lin MF. Clinical evaluation of several tumor markers in the diagnosis of primary hepatic cancer. *World J Gastroenterol* 2000; 6(Suppl3): 65  
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## Role of Chinese herbal medicines in a rat model of chronic colitis

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### Abstract

**AIM:** To investigate a mixture of traditional Chinese medicine (TCM) in the prevention of chronic colitis in rats.

**METHODS:** Sixty rats were divided into 3 groups. Colitis was induced by trinitrobenzene-sulfonic acid (TNB). On day 10, all the survived rats were killed, the mortality and intestinal obstruction

rate were calculated, the colonic lesion score was assessed and collagenase activity and collagen concentration were measured.

**RESULTS:** The survival rate was much lower and intestinal obstruction rate much higher in TNB than those in TCM, they were 53% and 81% vs 80% and 24% ( $P < 0.05$  and  $P < 0.01$ , respectively). There were also significant differences in colonic stricture score and colonic weight between TNB and TCM groups ( $1.75 \pm 1.2$  vs  $0.22 \pm 0.67$  and  $0.57 \pm 0.36$  vs  $0.31 \pm 0.10$ ,  $P < 0.01$  and  $P < 0.05$ , respectively). No hydroxyproline and collagenase activity differences were found between the two groups.

**CONCLUSION:** This mixture of TCM prevents the formation of intestinal stricture, increases the survival rate and decreases intestinal obstruction rate in a rat model of chronic colitis.

**Key words:** Trinitrobenzenesulfonic; Colitis/drug therapy (TCD); Rats; drugs, Chinese herbal; Blood stasis removing drugs; Models

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## Pyloric sphincter reconstruction in Billroth I gastrectomy

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### Abstract

**AIM:** To search for a new surgical method which accords with physiologico-anatomical principles, reduce the incidence rate of some postoperative complications in conventional Billroth I (CB1) gastrectomy and raise the life quality of patients after surgery.

**METHODS:** Using the blood vessels and innervation of the remaining stomach and duodenum, we designed a new pyloric sphincter reconstruction (PSR) in Billroth I gastrectomy, in which the end of

the duodenum remnant is surrounded by the seromuscular valve of 2 cm wide in the end of the greater curvature, thickened the muscle of the stoma and reconstructed a similar pylorus with the sphincteric function.

**RESULTS:** Eleven patients were treated, 8 males and 3 females, 6 malignant and 5 benign and 1 accompanied by mould infection, aged from 33 to 73 years, with 1 to 29 years of gastric disease history (average 7.9 years). The function of gastric emptying was shown to be essentially normal by barium meal study with video record one month after the operation. The pyloric-like control effect was present in the reconstructive pylorus. PSR vs CB1 vs NES ( $P > 0.01$ ); PSR vs CB1 ( $P < 0.01$ ); PSR vs NSE ( $P > 0.05$ ).

**CONCLUSION:** The new method of pyloric reconstruction is safer, simpler and more effective than conventional procedures. This method can be applied to all patients for whom Billroth 1 anastomosis can be performed regard less of benign or malignant lesion.

**Key words:** Pyloric sphincter reconstruction; Gastrectomy/method; Case report

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## Role of sphincter of Boyden in bile excretion and its regulating factors

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### Abstract

**AIM:** To investigate the role of sphincter of Boyden in bile excretion and its regulating factors.

**METHODS:** Perfusion manometry, choledochocineradiography, reaction of the sphincter of Boyden to endogenous cholecystokinin (CCK) and immunohistochemical quantitative analysis were performed in 16 dogs to study the motility and morphology of the sphincter of Boyden in experimental (postcholecystectomy) group ( $n = 8$ ) and the control group ( $n = 8$ ).

**RESULTS:** The bile duct surrounded by SB was a low-pressure lumen ( $10.0 \pm 2.0$  mmHg), in which the pressure was significantly different ( $P < 0.01$ ,  $t = 6.195$ ) from the basal pressure of the high-

pressure area of sphincter of Oddi (SO), its basal pressure (SOBP) was  $16.9 \pm 0.5$  mmHg. The SB was an enlarged ampulla during bile excretion interval, and showed active contraction during bile excretion. Intrinsic CCK could cause diastole of SO, but does not affect the systole and diastole of SB. After cholecystectomy, spastic contraction persisted in SB, which could not be relieved by intrinsic CCK. The sensitivity to CCK of SO was decreased, and the evacuation time of media prolonged ( $27.0 \pm 3.4$  min vs precholecystectomy  $17.1 \pm 0.9$  min,  $P < 0.01$ ,  $t = 7.961$ ). In immunohistochemistry analysis, the contents of  $\alpha$ -actin, myosin in the SB of experimental group showed no increase. Under electronic microscope, the main changes were 3D structural disarrangement of the cell framework, distortion of the microfilaments, swelling and aggregation of mitochondria at the nuclear side.

**CONCLUSION:** The excretion of bile can be divided into two types, physiological bile excretion with a drive mainly caused by the contraction of SB, and the other, functional bile excretion with a drive mainly caused by the contraction of gallbladder. It seems that the function of SB was controlled by vagus, whereas SO was more sensitive to the intrinsic CCK. The intact gallbladder is an elemental factor of functional coordination of SB and SO.

**Key words:** Bile ducts; Bile; Cholecystokinin; Immunohistochemistry; Oddi's sphincter

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## Point mutations in E2, NS3 and NS5A of hepatitis G virus

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### Abstract

**AIM:** To compare the point mutation deviations of HGV among E2, NS3 and NS5A.

**METHODS:** Seven patients with hepatic diseases from Japan and China were selected for this study. RNA was extracted and amplified by semi-nested RT-PCR; and the PCR products were sequenced directly.

**RESULTS:** The point mutation deviations of HGV in E2, NS3 and NS5A were 10%-17%, 11%-23%, and 0%-5%, in nucleotide sequences and 4%-12%, 0%, and 0%-6% in amino acid sequences respectively.

**CONCLUSION:** The frequency of variation at the nucleotide level was in the order NS3 > E2 > NS5A, while at the amino acid level the order was E2 > NS5A > NS3. The detected sequences from the N-terminus of E2 may be the poorly conserved region of HGV.

**Key words:** Hepatitis G virus; Genes; Mutation; Base sequence; Amino acid sequence

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## Effects of sinusoidal endothelial cell conditioned medium on the expression of connective tissue growth factor in rat hepatic stellate cells

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### Abstract

**AIM:** To investigate the effects of sinusoidal endothelial cell (SEC) conditioned medium on the expression of connective tissue growth factor (CTGF) in rat hepatic stellate cells (HSC).

**METHODS:** By *in situ* collagenase perfusion and two-step Percoll gradient centrifugation, SECs were isolated and cultured from

normally and CCl<sub>4</sub> treated Wistar rats, and the SEC conditioned media were collected. HSCs were prepared from Wistar rats by *in situ* perfusion and single step Nycodenzgradient, and were cultured with SEC conditioned media. Expression of CTGF in HSC was assessed using reverse transcription polymerase chain reaction (RT-PCR).

**RESULTS:** Expression of CTGF was not found in freshly isolated HSC and in primary culture of HSC on day 4 with SEC conditioned media from normal rats, but was present in primary culture of HSC on day 4 with SEC conditioned media from CCl<sub>4</sub> induced liver fibrosis rats. Expression of CTGF was observed in culture-activated HSCs, and the effect of SEC conditioned media from CCl<sub>4</sub> induced liver fibrosis rats on the expression of *CTGF* gene in activated HSCs was not significant.

**CONCLUSION:** Expression of CTGF might be relative to the activation of HSC and the liver fibrogenesis, and damaged SECs play a very important role in the early stage of activation of HSC.

**Key words:** Sinusoidal endothelial cell; Hepatic stellate cell; Connective tissue growth factor; Culture media; Clostridium histolyticum collagenase; Polymerase chain reaction

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Liu XJ, Liu F, Xiao WJ, Huang MH, Huang SM, Wang YP. Effects of sinusoidal endothelial cell conditioned medium on the expression of connective tissue growth factor in rat hepatic stellate cells. *World J Gastroenterol* 2000; 6(Suppl3): 70 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/70.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.70>

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## Evaluation of metal clips combining with microwave therapy in treating large, pedicellated gastrointestinal polyps

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### Abstract

**AIM:** To evaluate the curative effect of metal clips combining with microwave in treating large, pedicellated gastrointestinal polyps by endoscopy.

**METHODS:** Ten patients with pedicellated gastrointestinal polyps were treated with metal clips (Olympus MD-850) combining with

microwave by endoscopy. Among them, gastric polyps were found in 6 cases (6 polyps), colonic polyps in 4 cases (4 polyps), 9 polyps were 1.5-2 cm in size, the other one was more than 2 cm, the diameter of pedicel was 1 cm to 1.5 cm. All patients were repeatedly examined with endoscopy to observe the curative effect at 5 to 10 d and one mo after treatment.

**RESULTS:** All the 10 polyps were eradicated, 2-4 metal clips were placed in one polyp, the succeeding curative rate was 100%. No hemorrhage, perforation and other complications occurred.

**CONCLUSION:** The curative effect of metal clips combining with microwave in treating large, pedicellated gastrointestinal polyps by endoscopy is reliable and safe.

**Key words:** Gastrointestinal system; Polyps/therapy; Microwaves; endoscopy, digestive system; Metal clips

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Zhou KN, Feng QJ. Evaluation of metal clips combining with microwave therapy in treating large, pedicellated gastrointestinal polyps. *World J Gastroenterol* 2000; 6(Suppl3): 71 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/71.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.71>

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## Dan Nang Xue blockade with Innovar and Atropine to prevent internal organ pull response

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### Abstract

**AIM:** To observe the effects of Innovar and Atropine on Visceral pull response.

**METHODS:** Patients were randomly divided into two groups. The experimental group was treated by Dan Nang Xue blockade with Innovar 4 mL and Atropine 0.5 mg ( $n = 40$ ) and the control group was treated by abdominal vagus blockade with 10 mL of 10 g/L Lidocaine ( $n = 40$ ). Dan Nang Xue was chosen for insertion of No.5 needle (5 cm in length) after local sterilization. The acupoint of Dan Nang Xue is located at the outside of knee-joint and it is one-finger

wider below Yanglingquan can be found. A sensitive point. The needle was inserted between tibia and fibulae, lifted, thrust and twirled until the patient felt ache. Innovar and Atropine were injected on Dan Nang Xue and the acupoint was gently massaged.

**RESULTS:** Patients in the experimental group remained quiet during operation. Neither nausea or vomiting nor uncomfortable reaction was complained, 85% of the patients belonged to grade III. Acupuncture enhanced the peristalsis of gallbladder and biliary secretions. Atropine relieved muscular spasm and prevented vomiting. A low heart rate was noted in the control during abdominal survey and gallbladder pull ( $P < 0.05$ ).

**CONCLUSION:** Dan Nang Xue blockade with innovar and atropine can prevent visceral pull response.

**Key words:** Gallbladder/surgery; Atropine; Internal organs pull response; Follow-up studies; Dan Nang Xue blockade; Cholecystectomy

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Liu YC, Liang QS, Zhang YC, Ling XW. Dan Nang Xue blockade with Innovar and Atropine to prevent internal organ pull response. *World J Gastroenterol* 2000; 6(Suppl3): 72 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/72.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.72>

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## Proliferating ability of transitional mucosa adjacent to rectal carcinoma and its clinical significance in sphincter preserving operations

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### Abstract

**AIM:** To study the biopathologic characteristics of the transitional mucosa (TM) adjacent to rectal carcinoma and the resecting length of bowel.

**METHODS:** Immunohistochemical and mucin histochemical methods were used in 81 cases to observe the expression of PCNA and the changing regulations of TM adjacent to rectal carcinoma.

**RESULTS:** The PCNA expression rate was the highest in cancer and gradually decreased in atypical dysplasia, TM and normal mucosa ( $P < 0.01$ ). The range of TM adjacent to the mucinous adenocarcinoma was more extensive than that to the papilla adenocarcinoma and the tubular adenocarcinoma ( $P < 0.01$ ). The range of TM adjacent to the rectal carcinoma in Dukes C stage was more extensive than that in stage A, B ( $P < 0.01$ ,  $P < 0.05$ ).

**CONCLUSION:** The TM of rectal carcinoma possesses certain potential of malignancy. The range of TM adjacent to rectal carcinoma is closely related to the pathological type and advancement of rectal carcinoma.

**Key words:** Rectal neoplasms/surgery; Intestinal mucosa; Anus; Immunohistochemistry

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Su Q, Zhao Y, Chen CS, Liu EQ, Feng Y, Wang W, Li GQ. Proliferating ability of transitional mucosa adjacent to rectal carcinoma and its clinical significance in sphincter preserving operations. *World J Gastroenterol* 2000; 6(Suppl3): 73  
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## Evolution of gastrointestinal imageology in China: A 50-year review

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### Abstract

**AIM:** To review the evolution of gastrointestinal (GI) imageology in China over the past 50 years.

**METHODS:** The evolution of GI imageological equipment and techniques, published original articles of GI imageology in the Chinese Journal of Radiology, books of GI imageology in China, academic researches which won the academic award of scientific and technological progress at the ministerial and national level were reviewed.

**RESULTS:** Within 50 years of GI imageology evolution, equipment of GI imageology were developed from 200 mA X-rays apparatus in the 50 s to digital X-rays in the 90 s. Technique of GI imaging

was developed from general radiography in the 50 s to digital radiography (DR), CT and MR virtual endoscopy of GI in the 90 s. About 211 original articles were published in the Chinese Journal of Radiology on the GI imageology. Radiography and single contrast examination of disease were mainly described in the 50 s and CT and MR and DR and interventional radiology in the 90 s. Twelve books about GI imageology were published within the 50 years, ranging from atlas of X-ray examination and diagnosis of GI by Chen Zhen Lin to atlas of imaging diagnosis of alimentary tract disease by Jin-Xia Xie. Three academic prizes of scientific and technological progress were awarded by the Ministry of Health and the nation. The study of double contrast barium sulfate of Hua-Shan 2000 by Chen Gen-Fang *et al* acquired class 3 award of national invention in the 70 s, and experimental study and applications of double contrast radiography by Ke-Zhong Shang *et al* won class 3 award of the Ministry of Health.

**CONCLUSION:** In keeping abreast with the development of world GI imageology, great achievements have been made in the study and development in GI imageology in China with its own features.

**Key words:** Gastroenterology; X-rays; Tomography, X-ray computed; Magnetic resonance imaging; History; China

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## Effects of Weitongling decoction on gastric mucosal blood flow and models of Spleen deficiency syndrome in rats

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### Abstract

**AIM:** To study the protective effects of Weitongling decoction (WTL) on gastric mucosa.

**METHODS:** Rats with gastric lesion induced by dehydrated alcohol were used to observe the gastric mucosal blood flow (GMBF), rats with spleen deficiency syndrome induced by reserpine were applied to investigate the D-xylose absorption rate, the Alcian blue binding properties of gastric wall, the gastric acid secretion and the activity

of pepsin.

**RESULTS:** Remarkable increases in GMBF ( $19.5 \pm 3.5$  mL/min,  $20.4 \pm 3.3$  mL/min respectively in large dose group and small dose group,  $P < 0.01$ ), in Alcian blue binding properties of gastric wall ( $2.497 \pm 0.138$  mg,  $2.223 \pm 0.186$  mg respectively in large dose group and small dose group,  $P < 0.05$ ) and in D-xylose absorption rate ( $1.287 \pm 0.043$ ,  $1.294 \pm 0.019$  respectively in large dose group and small dose group,  $P < 0.05$ ) were found after administrations of WTL, while no significant alteration in gastric secretion was shown and in vitro WTL did not neutralize gastric acid.

**CONCLUSION:** WTL can improve the Spleen deficiency syndrome, strengthen the gastric mucosal barrier, and thus protect gastric mucosa against injury agents.

**Key words:** Gastric mucosa; Blood flow velocity; Spleen deficiency; Weitongling; Gastric acid; Rats

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Feng LY, Yan SQ, Chen XT. Effects of Weitongling decoction on gastric mucosal blood flow and models of Spleen deficiency syndrome in rats. *World J Gastroenterol* 2000; 6(Suppl3): 75 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/75.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.75>

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## Drug injection of Lanwei acupoint to prevent pull response during appendectomy

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### Abstract

**AIM:** To observe the effects of Lanwei acupoint blockade with drug to prevent pull response during appendectomy.

**METHODS:** Sixty patients with appendix (37 male and 23 female, ASA I - II) aged from 16 to 58 years old, were divided into two groups at random, and they underwent persistent epidural nerve block and Mc Burney opening. Group A for experiment ( $n_A = 30$ ) received persistent epidural nerve block plus drug injection of Lanwei acupoint. And the control group, group B ( $n_B = 30$ ), Received simple epidural nerve block. No remarkable difference was found in the

general data of both groups ( $P > 0.05$ ).

**RESULTS:** None of the experimental group had marked nausea and vomiting. Twenty-six cases belonged to grade 0 (account for 86.67%). Three cases were of grade I. One case was of grade II. None belonged to grade III. There were fewer changes in HR, BP and SPO2 during the operation. Compared with the experimental group. The results in the control group showed obvious changes in HR, BP and SPO2, especially at the time of 5 min post-pull appendix ( $P < 0.01$ ). Eleven cases belonged to grade III (36.67%), seven cases to grade II and Four cases to grade I, only 2 cases to grade 0.

**CONCLUSION:** Adjusting the function of Zang and Fu, maintaining the coordination and the balance among Zang and Fu, drug injection of Lanwei acupoint may prevent vagus reflex. The method is simple, easy, inexpensive and effective. It is advantageous to anesthetic care during the operation.

**Key words:** Acupuncture points; Acupuncture anesthesia, appendectomy; Injections, intralesional; Lanwei acupoint

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## Detection of telomerase activity in malignant neoplasms and nonmalignant epithelial tissues of human esophagus

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### Abstract

**AIM:** To study the expression of telomerase activity in malignant esophageal neoplasms and normal human esophageal epithelia.

**METHODS:** Telomerase activity was assayed by the telomere repeat amplification protocol (TRAP) method. All the neoplasms and epithelia of esophagus were confirmed by routine pathological diagnosis.

**RESULTS:** Telomerase activity was assayed in 18 normal esophageal epithelial tissues and in 35 malignant neoplasms of esophagus, including 27 cases of esophageal carcinoma and 8 cases of cardiac carcinoma. Telomerase activity was detected in most of malignant neoplasms of esophagus (91.4%, 32/35) and in all the normal esophageal epithelial tissues except one (18/19).

**CONCLUSION:** The results suggest that in addition to contributing to proliferation of immortal blast cells and neoplastic cells, telomerase activity may also play a similar role in regeneration of normal epithelia of human esophagus. The potential use of telomerase activity as a diagnostic marker in human esophageal neoplasm might not be suitable.

**Key words:** Telomerase; Telomerase repeat amplification protocol; Esophagus neoplasms/diagnosis; Esophagus epithelia

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## Molecular characteristics of two esophageal carcinosarcomas: A hint for the clonality of carcinomatic and sarcomatic tumor components

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### Abstract

**AIM:** To study the clonality of the esophageal carcinosarcoma by using molecular approaches.

**METHODS:** Two esophageal carcinosarcomas were included in the study. Tumor area from dysplastic lesion, squamous cell carcinoma, basaloid cell carcinoma and spindle cell elements were microdissected separately. Each element was analyzed with 14 microsatellite markers and direct sequenced for *p53* gene and *ras*

gene mutation.

**RESULTS:** Both tumors displayed a typical histologic feature of carcinosarcoma. Both cases showed the divergent differentiation by immunohistochemistry study. In case 1 the identical LOH at *p53* and *hMLH1* loci was detected. The heterogenous LOH was detected only in carcinosarcoma at *RB1* and *BRCA1* loci, while the LOH at *ACTC* locus was seen only in sarcoma. The same mutation of the splice site of exon 6-intron 6 displayed in the two tumor elements. In case 2, a coordinate LOH at *RB* locus was demonstrated in three types of tumor elements: squamous carcinoma, basaloid carcinoma and spindle cell element. A heterogenous LOH was seen only in spindle cells at *TAP1* locus. No mutation in exon 5-8 of *p53* gene has been found in case 2. No mutation of *K-ras* gene was found.

**CONCLUSION:** Although the different differentiation, the two elements of esophageal carcinosarcoma may have a single clonality. The *p53* gene mutation occurred before the two differentiation directions switched. The distinct molecular genotype can be determined through molecular biological analysis. The microsatellite profiling can serve as an approach to find out which genetic alteration occurs before or after the differentiation is determines.

**Key words:** Esophageal neoplasms; Mutation; Genes, *p53*; Molecular biology; Heterozygosity loss

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## Effect of treatment of tumor-infiltrating lymphocytes on gastric cancer

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### Abstract

**AIM:** To study the effect of immune treatment on gastric cancer.

**METHODS:** Thirteen patients with advanced gastric cancer were given TIL adoptive immunotherapy in this study. Histological findings showed that 13 patients had gastric adenocarcinoma. Patients received operations on their primary tumor, which could not be resected. Small tumor tissue and metastatic lymph nodes were got during the operation for TIL preparation. Ten patients were treated as control group. During TIL treatment, the patients did not received any other treatment. Surgical specimens (metastatic lymphnodes) with pathological diagnosis were obtained from operating room. The lymph nodes were minced and dissociated in RPMI 1640 with 0.03% hyaluronidase type V (1500 U/g), 0.05% collagenase type IV (200 U/g), and 0.008% deoxyribonuclease type I (100 U/g) (Sigma, United States) at 37 °C for 12 h. The cell mixture was then filtered through 4-layer gauge, washed twice in Hank's and separated on Ficoll-Hypaque (Shanghaiist Chemical Reagent Factory) at 900 × *g* for 20 min. Finally, the cells were harvested and counted. Cells suspension containing TIL and tumor cells were extensively washed and resuspended at a final concentration of 10<sup>6</sup> lymphocytes/mL in complete medium containing 15% human AB serum, 100 U/mL penicillin and 100 µg/mL streptomycin in RPMI 1640 (Gibco). The final concentration of rIL-2 (Military Medical Institute, Nanjing) was 500 U/mL. Cultured after 3-4 d, lymphoid cells were counted and culture was separated into more flasks when the concentration of lymphoid cells reached or exceeded 2 × 10<sup>6</sup>/mL until the total amount reached about 5 × 10<sup>9</sup>/mL cells. Cytotoxic activities of TIL were tested by 6 h <sup>51</sup>Cr-release assay. Target cells (5 × 10<sup>5</sup>/mL) (human gastric adenocarcinoma) in 1 mL of culture medium were

labelled with 100 µCi of Na<sup>251</sup>CrO<sub>4</sub> (Beijing Atomic Energy Research Institute, Beijing), washed and adjusted to 10<sup>5</sup> cells/mL. Labelled cells (E/T: 50:1, 25:1 and 12.5:1) were seeded in round-bottom micro test plates (Corning, Japan) at 104 cells/well. Isotope release was measured in a gamma counter (Packard, United States). The percentage of cytotoxicity was calculated according to the following formula: Cytotoxicity% = (Experimental-Spontaneous)/(Maximum-Spontaneous) × 100. Target cells without effective cells were mixed with 0.1 mL of culture media to obtain spontaneous release, and with 0.1 mL of 0.1 mol/L HCl to obtain maximum <sup>51</sup>Cr release. TIL cells so induced were counted, washed twice, resuspended in 100 mL 0.9% NaCl solution and intravenously transferred. The number of total autologous TIL cells injected was more than 5 × 10<sup>9</sup> cells for one patient and usually separated into 2-3 injection during the treatment, rIL-2 5000 U/d (Nanjing Military Medical institute, Nanjing) in 2 mL of 0.9% NaCl solution was intramuscularly injected starting from 5 d before TIL cells transfer to 5 d after transfer of TIL cells. All patients were given scheduled gastric roentgenograms. CT scanning, B type ultrasound, histological examination and immune function were used to observe the changes before, during and after treatment. The curative effects were judged by the standard of WHO. The methods of the assays of SIL-2R, NK cytotoxicity and CD4/CD8 were carried out respectively according to the references.

**RESULTS:** The Nk cytotoxicity and CD4/CD8 were significantly increased (*P* < 0.01) after 3-6 mo treatment. The soluble IL-2 receptor in sera of patients was significantly decreased (*P* < 0.01) after 3-6 mo treatment. There were no significantly differences in the test of CD4/CD8, the cytotoxicity of Nk cells and the soluble IL-2 receptor in serum between the group before treated by TIL and the control group (*P* > 0.05). The NK cytotoxicity and CD4/CD8 in patients treated by TIL were significantly more than those in the control group. On the contrary, the soluble IL-2 receptor in serum of patients treated by TIL was significantly less than those in serum of the control group. The patients of control group survive d from 4-5 mo to 9 mo (less than one year) after operation. However seven of the thirteen patients treated by TIL after operation survived over one year. Appetite was improved, sinew enhanced, weight increased and pain relieved in most of patients treated by TIL. On the contrary, the symptoms and signs of patients of control group were not improved. According to the standard of WHO, there were significantly differences of PD (Disease Progress), MR (Minor remission), and PR (partial remission) between TIL group and control group. The results indicated that tumor focus completely disappeared in 1 (80%) of 13 patients, significantly decreased in 4 (30%) of 13 patients and slightly decreased in 7 (53%) of 13 patients, suggesting that the treatment of TIL in the patients with advanced cancer was effective. No side effects were found except for transient fever in 2 patients.

**CONCLUSION:** TIL should be one of the fundamental therapies for the advanced gastric cancer, it can regulate the balance of immunity, relieve pain, improve symptoms and signs and prolong survival time.

**Key words:** Stomach neoplasms; Tumor infiltrating lymphocyte; Interlukine-2; Immunotherapy

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Xu LC, Chen ZL, Sun ZH, Xu XY, Wu MS, Ding SB. Effect of treatment of tumor-infiltrating lymphocytes on gastric cancer. *World J Gastroenterol* 2000; 6(Suppl3): 79-80 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/79.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.79>

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## Liver-protecting and fibrosis-resisting effect of Ganxianning on rats with spleen deficiency and stagnation of Liver-qi

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### Abstract

**AIM:** To study the liver-protecting and fibrosis-resisting effect of Ganxianning (GXN) and its mechanism.

**METHODS:** Model of carbon tetrachloride hepatic injury fibrosis rats was reproduced. In the experiment there were six groups, the treatment groups with GXN's large, moderate and small dose (GXNb, GXNm and GXNs), the treatment group with colchicine, the blank

model group and normal control group. The course of treatment was 30 d, then the rats were killed with their blood and liver tested.

**RESULTS:** In treatment groups, alanine aminotransferase was lower than that in the model group ( $P < 0.01$ ), and albumin (Alb) higher than that in the model ( $P < 0.01$ ). Hydroxylproline and red cell membrane C3B receptor garland in GXNb's and GXNm's groups were lower and circulation complex (CIC) was slightly higher. Fibrinogen (Fb) in both colchicine and model groups was higher than that in normal group and the difference was significant ( $P < 0.05$ ,  $P < 0.01$ ). Compared with model group, acid- $\alpha$ -naphthyl acetate esterase (ANAE) increased in GXNb's and GXNm's groups ( $P < 0.05$ ,  $P < 0.01$ ). Under light and electron microscopes, level of hepatic fibrosis of GXN groups was much lower than that of the model group,  $P < 0.01$ , and their difference was very significant. In GXNm's group, liver cell was normal on the whole and its chromatin was more than the model group and its nucleolus was evident.

**CONCLUSION:** GXN has rather good functions of protecting liver and resisting fibrosis, and these functions are related to the increase of ANAE and C3B, decrease of CIC and Fb, and improvement of body immunity function.

**Key words:** Ganxianning; Liver fibrosis/drug therapy; Colchicum; Microscopy, electron; Deficiency, spleen; Stagnation, Liver-qi; Rats

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## Clinicopathological study in treatment of chronic hepatitis with hyperbaric oxygenation

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### Abstract

**AIM:** To probe into the feasibility and theoretic basis for the treatment of chronic hepatitis with hyperbaric oxygenation (HBO).

**METHODS:** Sixty cases of chronic hepatitis were randomly distributed into an experimental group ( $n = 30$ ) and a control group ( $n = 30$ ). The experimental group was treated with HBO for 6 courses. The control group was treated with commonly used drugs in clinic for 60 d. The function and blood stream graph of liver were examined

and the liver biopsies were made before and after treatment. The routine paraffin slides of liver tissue were cut, stained with HE, and observed under optical microscope. The ultrathin slides from paraformaldehyde and glutaraldehyde fixed liver tissue were cut, stained with lead citrate, and observed under transmission electric microscope. The HBsAg and HBeAg in the experimental group were detected by the ABC immunohistochemical method before and after treatment.

**RESULTS:** In the experimental group the ALT, SB,  $\gamma$ -GT, AKP, IgG and IgM in blood ( $P < 0.05$ ) and the degeneration and necrosis of hepatocytes ( $P < 0.05$ ) were remarkably decreased, the mean contractive wave of blood stream in the liver ( $P < 0.05$ ) and the blood stream in the right ramus of janitrix ( $P < 0.05$ ) were significantly increased, and the swelling of mitochondria, the increased lysosomes, the generation of Kupffer's cells, the infiltration of lymphocytes in portal area and the capillary generation were remarkably alleviated ( $P < 0.05$ ), but the fibrosis and fat storing cells did not reduce ( $P > 0.05$ ) in the liver, and the expression of HBsAg and HBeAg in the liver was not lowered ( $P < 0.05$ ) after the treatment with HBO.

**CONCLUSION:** The treatment with HBO for chronic hepatitis was effective and recommendable.

**Key words:** Hepatitis/therapy; Hyperbaric oxygenation; Liver cirrhosis; Hepatitis/pathology; Liver/ultrastructure; Immunohistochemistry

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Liu W, Lü X, Zheng XG, Zhao W, Luo C. Clinicopathological study in treatment of chronic hepatitis with hyperbaric oxygenation. *World J Gastroenterol* 2000; 6(Suppl3): 82 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/82.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.82>

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## Effects of collagen solution on the prevention of acute gastric mucosa injury in rats

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### Abstract

**AIM:** To investigate the effects of collagen solution on the prevention of acute gastric mucosal injury in restricted rats inflicted by cooling in low temperature (4 °C).

**METHODS:** Thirty healthy Wistar rats were randomly divided into normal (N,  $n = 10$ ), injury (I,  $n = 10$ ) and prevention (P,  $n = 10$ ) groups. The rats were fasted for 48 h but free access to water without restriction and cooling in normal group, fasted for 48 h but free access to water with restriction of rats onto the fixation frame for cooling in 4 °C for 4 h, so to cause stress injury of gastric mucosal membrane in I group and fed with 3 mL of collagen solution 30 min before injury in P group in addition to the procedures in I group. Gastric mucosal potential difference, blood flow volume, content of nitrite (NO<sub>2</sub>) and hydrogenion concentration ([H<sup>+</sup>]) in gastric juice were determined under anesthesia at 48 h after fast in N group and

at 4 h after injury in I and P groups to evaluate the degree of injury (injury index).

**RESULTS:** Gastric mucosal potential difference was  $22.10 \pm 5.27$  in N group and  $11.46 \pm 5.25$  in I group with obvious difference ( $P < 0.01$ ), but  $16.98 \pm 4.84$  in P group which was remarkably improved when compared to that in I group. Gastric mucosal blood flow volume was  $23.65 \pm 10.65$  in I group and  $57.20 \pm 11.75$  in N group with evident difference ( $P < 0.01$ ), but  $37.49 \pm 5.87$  in P group with sound effects in contrast to that in I group ( $P < 0.01$ ). Gastric injury index was  $18.40 \pm 8.35$  in I group and  $7.9 \pm 2.13$  in P group with significant difference ( $P < 0.01$ ). Hydrogenion concentration in gastric juice was  $118.0 \pm 41.2$  mmol/L in N group,  $186.9 \pm 74.7$  mmol/L in I group and  $96.4 \pm 57.2$  mmol/L in P group with prominent difference ( $P < 0.01$ ) between those in I and P group. Gastric mucosal nitrite concentration was  $1.15 \pm 0.46$  in N group,  $0.69 \pm 0.15$  in I group and  $1.04 \pm 0.44$  in P group with obvious differences between N and I groups ( $P < 0.01$ ) and between I and P group ( $P < 0.01$ ).

**CONCLUSION:** Ischemic and hypoxic injury of gastric mucosal due to low blood perfusion during restriction and cooling injury at 4 °C was supposed to be an important factor in inducing gastric mucosal stress injury. But collagen solution could maintain the integrity of gastric mucosal barrier, buffer gastric acid, promote thrombocytic agglutination and ameliorate direct injury to gastric mucosa caused by various factors.

**Key words:** Gastric mucosa; Injury; Stress; Collagen; Acute gastric mucosa injury; Potential difference

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## Effect of boschniakia rossica on expression of GST-P, p53 and p21<sup>ras</sup> proteins in early-stage chemical hepatocarcinogenesis and its anti-inflammatory activities in rats

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### Abstract

**AIM:** To investigate the effect of boschniakia rossica (BR) extract on expression of GST-P, p53 and p21<sup>ras</sup> proteins in early stage chemical hepatocarcinogenesis in rats and its anti-inflammatory actions.

**METHODS:** The expression of tumor marker, placental form glutathione S-transferase (GST-P), p53 and p21<sup>ras</sup> proteins were investigated by immunohistochemical techniques and ABC method. Anti-inflammatory activities of BR were observed by xylene and croton oil-induced mouse ear edema, carrageenin, histamine and hot scald-induced rat paw edema, adjuvant-induced rat arthritis and

cotton pellet induced mouse granuloma formation methods.

**RESULTS:** The 500 mg/kg of BR-H<sub>2</sub>O extract fractionated from BR Methanol extract had inhibitory effect on the formation of DEN-induced GST-P-positive foci in rat liver and the expression of mutant p53 and p21<sup>ras</sup> protein was lower than that of hepatic preneoplastic lesions. Both CH<sub>2</sub>Cl<sub>2</sub> and H<sub>2</sub>O extract from BR have inhibitory effect in xylene and croton oil-induced mouse ear edema. BR-H<sub>2</sub>O extract exhibited inhibitory effect in carrageenin, histamine and hot scald-induced hind paw edema and adjuvant-induced arthritis in rats and cotton pellet induced granuloma formation in mice.

**CONCLUSION:** BR extract exhibited inhibitory effect on formation of Preneoplastic hepatic foci in early stage of rat chemical hepatocarcinogenesis. Both CH<sub>2</sub>Cl<sub>2</sub> and H<sub>2</sub>O extract from BR exerted anti-inflammatory effect in rats and mice.

**Key words:** Boschniakia rossica; Liver neoplasms/chemically induced; Glutathione transferases; Protein p53; Proto-oncogene protein p21 (Ras); Immunohistochemistry; Arthritis, adjuvant; Antibiotics

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Yin ZZ, Jin HL, Yin XZ, Li TZ, Quan JS, Jin ZN. Effect of boschniakia rossica on expression of GST-P, p53 and p21<sup>ras</sup> proteins in early-stage chemical hepatocarcinogenesis and its anti-inflammatory activities in rats. *World J Gastroenterol* 2000; 6(Suppl3): 84 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/84.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.84>

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## Ileocolic esophageal replacement in children with benign stricture of esophagus

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### Abstract

**AIM:** To treat esophageal stricture secondary to the ingestion of corrosive materials in children using the ileocolon with ileocecal valve as a substitute for esophagus.

**METHODS:** Between 1992 and 1999, isoperistaltic retrosternal ileocolic esophageal replacements were performed in 12 patients; 50 cadavers were studied to observe the vascularity in the ileocolic region and metabolic indexes were measured before and after surgery or between the operative group and the normal controls in 20 piglet models.

**RESULTS:** A follow-up of 3 years in the 12 cases found no death in intra and Post operative period clinically. Cervical ileoesophageal anastomotic leaks occurred in 2 cases. The distribution pattern of venous vessel in the ileocolic region was far more constant than that of the artery. The arrangements of artery in the ileocolic segment were classified into 7 types, and there was no interruption of paracolic anastomosis between arteries. The resections of 50 cm terminal ileum, cecum and 50 cm ascending colon affected enterohepatic circulation of bile acid (bile salt) and the fatty metabolism in early period after surgery in piglet models. Shortening of the time and reducing of the area for water absorption after ileocolic resection resulted in diarrhea in piglet models. The loss of "bacterial barrier" role of ileocecal valve led to bacteria immigration from colon to ileum and small intestinal bacterial overgrowth.

**CONCLUSION:** The ileocolic esophageal replacement taking advantage of antireflux role of the ileocecal valve has obtained satisfactory effect. To understand the characteristics of the patterns of arteries and veins distribution and physiological functions of the ileocolic segment is useful in guiding clinical practice and postoperative management and preventing postoperative complications as well.

**Key words:** Esophageal stenosis/in infancy and childhood; Esophageal stenosis/therapy; Ileocecal value; Ileocolic esophageal replacement

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## Rapid identification of LT<sup>+</sup> *E. coli* by means of PCR and its test comparisons

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### Abstract

**AIM:** To select a test method for specific, sensitive and rapid identification of LT<sup>+</sup> *E. coli*.

**METHODS:** Stool samples inoculated into LB solution were cultured for 4 h at 35 °C. 10  $\mu$  boiled culture solution was taken to template. Two oligonucleotide primers were used in a polymerase chain reaction (PCR) procedure to amplify a highly conserved DNA sequence of the A subunit of the heat-labile enterotoxin. Detection of the 110 bp amplified product can be done by agarose gel electrophoresis. Thirty strains of known bacteria (LT<sup>+</sup> *E. coli* (EC-129), ST<sup>+</sup> *E. coli* (EC-130) and LT<sup>+</sup> ST<sup>+</sup> *E. coli* (EC-142), *Salmonella typhimurium*, *Salmonella typhi*, *Salmonella paratyphi A*, *Salmonella group C*, *Shigella sonnei*, *Enterobacter aerogenes*, *Alcaligenes sp*, *Providencia rettgeri*, *Proteus mirabilis*, *Morganella morganii*, *Pseudomonas aeruginosa*, *Aeromonas hydrophila*, *Klebsiella*

*pneumoniae*, *Citrobacter diversus*, *Enterobacter cloacae*, 12 strains of *E. coli* isolated from bile samples) and 108 diarrhea samples were detected. A total of 108 diarrhea samples were compared with LT probe hybridization, modified Eleck (M-Eleck) and ELISA simultaneously.

**RESULTS:** By PCR, of the 30 strains of bacteria, only LT<sup>+</sup> *E. coli* and LT<sup>+</sup> ST<sup>+</sup> *E. coli* were positive; in 40 of the 108 diarrhea samples, 20 were positive and in the other 68 samples from infants, only five were found to be positive. Of the 25 positive samples by PCR, 23 were also found to be positive in the other 3 tests; 1 was found to be positive by M-Eleck and ELISA. Of the 83 negative samples by PCR, the same negative results were found by MEleck and ELISA, but 2 were found to be positive by LT probe hybridization. The overall coincidence rate was about 95%. Analysis of correlation showed a significant difference between PCR and other three tests ( $P < 0.01$ ) and analysis of difference showed no significant difference ( $P > 0.05$ ) between them. In the detection of LT<sup>+</sup> *E. coli* by means of PCR, the minimum number of target bacteria required was 50 CFU. The whole test was finished in 7 h.

**CONCLUSION:** Detection of LT<sup>+</sup> *E. coli* by PCR showed that the method is specific, sensitive and rapid.

**Key words:** *Escherichia coli*; Oligonucleotides; Polymerase chain reaction; Electrophoresis, agar gel; Diarrhea; feces; Enterotoxins

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Cui YX, Shao HF, Yang YH. Rapid identification of LT<sup>+</sup> *E. coli* by means of PCR and its test comparisons. *World J Gastroenterol* 2000; 6(Suppl3): 86 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/86.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.86>

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## Percutaneous expandable metallic stent biliary endoprotheses used in malignant and benign obstructive jaundice

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### Abstract

**AIM:** To evaluate the effects of expandable metallic stent biliary endoprotheses (EMSBE) *via* ultrasonographic guided percutaneous transhepatic approach on the treatment of benign and malignant obstructive jaundice.

**METHODS:** Thirty-eight patients with obstructive jaundice (29 males and 9 females) aged 27 to 69 years (mean 54.7 years) were studied.

of them, 4 were benign and 34 malignant obstructions. Percutaneous transhepatic cholangiography (PTC) was performed under ultrasonic guidance. A catheter was introduced into the dilated bile duct *via* the introducer. A guide wire was inserted through the occlusive part of biliary duct after dilating with a double-lumen balloon catheter. A self-expandable metallic stent was inserted into the occlusive bile duct under fluoroscopic control.

**RESULTS:** The success rate of sonographic guided PTC was 100% (38/38) and the success rate of stent implantation was 86.8% (33/38). Biliary obstruction was eliminated immediately, jaundice subsided gradually and symptoms relieved after the procedure. During the 3 to 28 mo follow-up, re-occlusion occurred in 4 malignant cases which were corrected by balloon catheter dilation and/or by stent, one patient had secondary cholangitis and fifteen died without jaundice 6-28 mo after the procedure. The others were alive with no jaundice. No severe complications or side effects were observed.

**CONCLUSION:** EMSBE *via* sonographic guided percutaneous transhepatic approach is a reliable and safe palliative therapy for malignant jaundice and an ideal nonoperative method for benign biliary obstruction. It has a definite positive impact on the quality of patient life.

**Key words:** Expandable metallic stent biliary endoprosthesis; Cholestasis; Palliative treatment; Life quality

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## Dynamic observation of T cell and erythrocyte immune function in children with rotavirus enteritis

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### Abstract

**AIM:** To study the change of T cell subsets and erythrocytes immune function in children with acute rotavirus enteritis (RE) and to explore its clinical significance.

**METHODS:** T cell subsets were detected by indirect immunofluorescence technique, RBC immune function was achieved by detecting RBC C3b receptor rosette (RBC-CR1R) and RBC immune complex rosette (RBC-ICR). The statistical significance of differences was evaluated by using analysis of variance (ANOVA).

**RESULTS:** The percentage rate of CD3 and CD4 cell and the ratio of CD4/CD8 in acute stage of RE were significantly lower than those of control ( $P < 0.01$ ), while the percentage rate of CD8 cell remained almost unchanged. Along with the improvement of clinical symptoms, the level of CD3, CD4 and CD4/CD8 returned to normal in recovery stage. RBC-CR1R in acute stage of RE was significantly lower than that of control ( $F = 15.44$ ,  $P < 0.01$ ) and returned to normal in recovery stage. RBC-ICR rose slightly in acute stage of RE, but there was no significant difference between acute stage of RE and the control ( $F = 0.02518$ ,  $P > 0.05$ ). Correlative analysis showed that RBC-CR1R was positively correlated to the percentage rate of CD4 cell ( $r = 0.5281$ ,  $P < 0.01$ ) and the ratio of CD4/CD8 ( $r = 0.4832$ ,  $P < 0.01$ ), in acute stage of RE.

**CONCLUSION:** Cellular immune might take part in the development of RE, CD4/CD8 ratio might be related to the prognosis of RE. The immune function of RBC reduced secondarily in acute stage of RE. It is necessary to keep the immune function of RBC in treatment of RE in order to strengthen the patient's ability of anti-infection.

**Key words:** Rotavirus enteritis/in infancy and children; Rotavirus infection/in infancy and children; T-lymphocyte subsets; Erythrocytes/immunology; Fluorescent antibody technique; Analysis, variance

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## Immunohistochemical study on p53, H-rasp21, c-erbB-2 protein and proliferating cell nuclear antigen expression in tumor tissues of Han and minority ethnic patients with primary hepatic carcinoma in Xinjiang

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### Abstract

**AIM:** To find out if there is any difference in human primary liver carcinogenesis between Han and minority ethnic patients in Xinjiang.

**METHODS:** Expression of p53, c-erbB-2, H-rasp21 protein and proliferating cell nuclear antigen (PCNA) in tumor tissues of 50 patients (Han 38, minorities 12) with primary hepatic carcinoma (HCC) was detected by immunohistochemistry (LSAB).

**RESULTS:** The positive frequency of p53, c-erbB-2, H-rasp21 and PCNA expression was 46.0% (23/50), 70.0% (35/50), 68.0% (34/50)

and 82.0% (41/50) in tumor tissues; 4.0% (2/50), 22.0% (11/50), 64.0% (32/50) and 52.0% (26/50) in peritumor respectively with a significant difference, except for H-rasp21 ( $P < 0.05$ ) between tumor and non-tumor tissues. Combined the three oncogenes alteration, 26% (13/50) tumor tissues had positive immunoreactivity, but peritumor and normal liver were negative. The positive p53, c-erbB-2, H-rasp21 protein expression was 39.5% (15/38), 60.5% (23/38) and 39.5% (15/38) in tumors of Han patients; 66.7% (8/12), 100% (12/12) and 75.0% (9/12) in minority patients respectively. A statistical difference between Han and minority cancer samples was observed ( $P < 0.05$ ).

**CONCLUSION:** Overexpression of p53, c-erbB-2 and H-rasp21 in human primary liver carcinoma is an important biomarker of genetic alteration. The different frequency of these oncogenetic changes may reflect some environmental factors or/and ethnic hereditary affecting the liver carcinogenesis. The special life style of Han, Uygur, Kazak and Mongolia nationalities in Xinjiang may also involve the etiopathogenesis of this disease.

**Key words:** Liver neoplasms/etiology; Oncogenes; X nationality; Environment; Genes, p53; Immunohistochemistry

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Lin GY, Chen ZL, Lu CM, Li Y, Wang J, Ping XJ, Huang R. Immunohistochemical study on p53, H-rasp21, c-erbB-2 protein and proliferating cell nuclear antigen expression in tumor tissues of Han and minority ethnic patients with primary hepatic carcinoma in Xinjiang. *World J Gastroenterol* 2000; 6(Suppl3): 89  
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## Progress in pharmacological mechanisms of terandrine and its therapeutic use in digestive diseases

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### Abstract

**AIM:** To review the progress in pharmacological mechanisms of terandrine (Tet) and its therapeutic use in digestive diseases.

**METHODS:** We reviewed almost all the papers related to Tet from various magazines published in English and Chinese in recent years.

**RESULTS:** It has been demonstrated that Tet had multiple bioactivities: (1) Tet could act as a  $\text{Ca}^{2+}$  antagonist *via* blocking cellular plasma membrane voltage or receptor operating  $\text{Ca}^{2+}$  channels, inhibiting extracellular  $\text{Ca}^{2+}$  entry into the cell and intracellular  $\text{Ca}^{2+}$  mobilization to the cytosol, so as to prevent hepatocytes, cardiomyocytes, pancreas cells and neurocytes from toxic or ischemia reperfusion injuries. However, in HL-60 and leukemic T cells, Tet promoted  $\text{Ca}^{2+}$  releasing from mitochondria

and microsomes, increased the concentration of intracellular  $\text{Ca}^{2+}$ , and induced cell death; (2) Tet inhibited phorbol 12-myristat 13-acetate (PMA) plus ionomycin-induced T cell proliferation, interleukin-2 secretion and expression of the T cell activation antigen, CD71. It could also interrupt the integrity of macrophages, and reduced respiratory burst of neutrophils and macrophages and proinflammatory cytokines secretion through minimizing nuclear transcriptional factor kappa B DNA binding activity; (3) Tet could induce tumor cell apoptosis, and down regulate P-glycoprotein activity; and (4) Tet has the therapeutic effects on hepatic fibrogenesis, portal hypertension, immunomodulation, *etc.*

**CONCLUSION:** Tet can act as a  $\text{Ca}^{2+}$  channel blocker, inhibit proinflammatory factors releasing, modulate immunoreaction, and induce tumor cell apoptosis. It can be used to prevent hepatocyte injury induced by toxins and virus, inhibit hepatic fibrogenesis, reduce portal venous pressure, and can be used as an anti-tumor drug as well.

**Key words:** Terandrine; Pharmacology, clinical; Digestive system diseases/drug therapy; Antineoplastic agents, phytogetic; Calcium channels; Apoptosis

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Li DG, Wang ZR, Lu HM. Progress in pharmacological mechanisms of terandrine and its therapeutic use in digestive diseases. *World J Gastroenterol* 2000; 6(Suppl3): 90 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/90.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.90>

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## Gastric cancer screening in 16 villages of Zhuanghe region: A mass screening report from a high risk area of stomach cancer in China

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### Abstract

**AIM:** To study the comprehensive prevention and treatment of gastric cancer among high risk population in the high risk areas.

**METHODS:** A gastroduodenal mass screening was performed in 16 villages of Zhuanghe region. About 50000 population were involved and 3033 cases aged above 35 suffering from gastric diseases, and/or had family history of gastric cancer were screened. Clinical epidemiological investigation, double contrast X-ray, serum pepsinogen monitor, gastroscopic biopsies and histopathologic

examinations were adopted in the screening.

**RESULTS:** The ratio of the examined patients with gastric disorder reached up to 82% and 32 patients with gastric cancer were detected (1.06%) and 18 cases were early gastric cancer (56.25%). Patients with gastric cancer were treated successively. Aside from gastric cancer, several gastric lesions were also detected, which laid a good foundation for further interventional treatment. It was also found in the examination that 93.97% of the local residents were addicted to salted pork and more than 60% of the residents had *Hp* infection.

**CONCLUSION:** Gastric diseases, *Hp* infection of gastric mucosa and eating salted pork are very common in Zhuanghe region. These are very dangerous factors causing gastric cancer. It is feasible to quit eating salted pork and eradicate *Hp* infection and cure precancerous diseases.

**Key words:** Stomach neoplasm/prevention and control; Stomach neoplasm/therapy; Stomach neoplasm/epidemiology; Serodiagnosis; Gastroscopy; Biopsy; Mass screening; Pepsinogen; Risk factors; Food habits

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## The clinical significance of ultrasound monitoring acute fluid accumulation in acute pancreatitis

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### Abstract

**AIM:** To evaluate the usefulness of ultrasound monitoring acute fluid accumulation in acute pancreatitis.

**METHODS:** Six hundred and twenty seven patients with acute pancreatitis were undergone ultrasonographic examination. All examinations were performed by the attending doctors. The first scans were performed on the first or second day after admission to

our hospital, if there were acute fluid accumulation in peripancreatic spaces including the lesser sac, pararenal spaces, peritoneal cavity, or even thoracic cavity, then the follow-up scans were routinely performed 3-7 d following the initial scan and this interval was dependent upon the severity of acute pancreatitis, and particularly noticed the changes of pancreas and the fluid mentioned above. Continuous variables were analyzed by *t* test, Discrete variables were analyzed by the  $\chi^2$  test and rank sum test using SPSS,  $P < 0.05$  was considered significant.

**RESULTS:** Acute fluid accumulation was found in 57.5% of 627 patients among them 14.4% evolved into complications and 85.6% resolved spontaneously. The most frequent sites of fluid accumulation are the peritoneal cavity and the left hemithorax, followed by the lesser sac and right hemithorax ( $\chi^2 = 738$ ,  $P < 0.0001$ ); the hospital stay was longer as the quantity of acute fluid accumulation increased ( $P < 0.0001$ ,  $t = 2.2-4.2$ ). There was no fluid accumulation in mild AP and more than 2 sites in severe AP ( $P < 0.0001$ ,  $\chi^2 = 147.8$ ).

**CONCLUSION:** The number of sites as well as the duration of fluid accumulation are proportional to hospital stay and the severity of AP.

**Key words:** Pancreatitis/ultrasonography; Pancreatic juice

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## Intrahepatic biliary papillomatosis

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### Abstract

**AIM:** To understand the characteristics and investigate the diagnosis, treatment of intrahepatic biliary papillomatosis.

**METHODS:** Two cases were confirmed operatively and pathologically, and the literature reviewed.

**RESULTS:** The causes of the disease are not clear, but the long term irritations of stone and inflammation may be considered. Despite being histologically benign, it has low grade malignant potential, characterized by multiple and diffusive manner, and has high rates of recurrence and malignant transformation. Jaundice and cholangitis are the dominant manifestations. Imaging modalities are beneficial in it's diagnosis, and the scanning of choledochoscopy is of great value.

**CONCLUSION:** The management of the disease is difficult. Curative resection is the primary therapy. Curettage and drainage may lead to high recurrence. The chemotherapy and lasertherapy represent other modalities in the treatment. Biliary papillomatosis may become a new indication for liver transplantation.

**Key words:** Bile duct, intrahepatic; Papilloma; Neoplasms, multiple primary; Jaundice; Liver transplantation; Drug therapy

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## Determination of lipid peroxide and superoxide dismutase in blood and tissue of patients with gastrointestinal cancer

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### Abstract

**AIM:** To study the relationship between the lipid peroxide (LPO) and superoxide dismutase (SOD) and the pathogenesis of gastrointestinal cancers.

**METHODS:** We investigated the SOD activity and LPO levels in blood and mucosa of patients with esophageal (EC), gastric (GC) and colorectal cancer (CC), gastric ulcer (GU) and compared with normal esophagus (NE), stomach (NS) and colon (NC). respectively, 287 patients who underwent endoscopy were studied. SOD activity of the tissue and blood was determined using SUN's adrenaline auto oxidation method. LPO levels were determined according to YU's method.

**RESULTS:** The SOD activity and LPO level in blood and mucosa are

**Table 1** Superoxide dismutase and lipid peroxide in blood and tissues of patients with gastrointestinal cancers

Groups	n	SOD (U/mg protein)		LPO (U/mg)	
		Tissue	Blood	Tissue	Blood
Normal stomach	60	1.90 ± 0.18	33.70 ± 1.73	0.01 ± 0.004	0.83 ± 0.01
Gastric ulcer	42	0.64 ± 0.40 <sup>a</sup>	25.50 ± 0.67 <sup>b</sup>	0.05 ± 0.010 <sup>b</sup>	0.11 ± 0.02
Gastric cancer	43	0.37 ± 0.24 <sup>a</sup>	27.86 ± 1.02 <sup>b</sup>	0.06 ± 0.021 <sup>b</sup>	0.12 ± 0.03
Normal esophagus	32	1.17 ± 0.70	30.80 ± 3.78	0.014 ± 0.005	0.08 ± 0.02
Esophageal cancer	52	0.39 ± 0.30 <sup>a</sup>	28.23 ± 10.63	0.061 ± 0.033 <sup>b</sup>	0.11 ± 0.02
Normal colon	28	0.81 ± 0.36	20.97 ± 4.77	0.012 ± 0.003	0.08 ± 0.03
Colon cancer	30	0.31 ± 0.17 <sup>b</sup>	19.35 ± 7.32	0.069 ± 0.015 <sup>b</sup>	0.11 ± 0.02

<sup>a</sup>P < 0.001, <sup>b</sup>P < 0.01 vs corresponding normal controls, respectively. SOD: Superoxide dismutase; LPO: Lipid peroxide.

shown in the Table 1 ( $\bar{x} \pm s_x$ ).

**CONCLUSION:** SOD activity of the tissue is significantly decreased in EC, GC and CC. LPO levels were significantly higher than those of corresponding normal tissue. These results suggest that mucosal SOD and LPO levels are closely related to the pathogenesis of the gastrointestinal cancers.

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**Key words:** Lipid peroxides; Superoxide dismutase; Free radical; Stomach neoplasms; Esophageal neoplasms; Colorectal neoplasms

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## Body weight, concentration of plasma leptin and serum testosterone of rats in response to feeding of chitosan

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### Abstract

**AIM:** To evaluate the effect of chitosan on rat body weight, concentration of plasma leptin and serum testosterone.

**METHODS:** Five groups of rats were respectively given access to basic diet, high fat diet and high fat diet with different doses of chitosan (1.5%, 3.0% and 6.0% of chitosan in high fat diet respectively) for 7 wk. All rats were weighed once a week. By the end of 7 wk, the animals were sacrificed and their blood samples were taken, the concentration of plasma leptin and serum testosterone were determined by RIA Kit method.

**RESULTS:** At the end of 7 wk, the average body weight of rats treated with high-fat diet was 67.3 g heavier than that with the basic diet, however, the average body weight of rats treated with high doses of chitosan in high-fat diet was 56.3 g lighter than that with high-fat diet ( $P < 0.01$ ). In addition, plasma leptin concentration in rats treated with high fat diet was significantly different from those with basic diet ( $P < 0.01$ ); plasma leptin concentration in rats treated with high dose of chitosan in high-fat diet was significantly lower than those with high-fat diet ( $P < 0.01$ ), but was significantly higher than those with basic diet ( $P < 0.05$ ). Serum testosterone level in rats treated with high-fat diet was significantly lower than those with basic diet ( $P < 0.01$ ). Serum testosterone levels in rats administrated high dose of chitosan in high-fat diet were significantly lower than those with high-fat diet ( $P < 0.01$ ).

**CONCLUSION:** Chitosan prevents the increase of rat body weight induced by high-fat diet, and lowers plasma leptin and serum testosterone in rats.

**Key words:** Body weight; Attention; Testosterone/blood; Chitosan; Nutrition; Rats; Plasma

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## Proceedings in the study of transcutaneous CO<sub>2</sub> emission in acupuncture and meridians

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### Abstract

**AIM:** To observe the features of acupuncture and meridians by measuring transcutaneous CO<sub>2</sub> emission (TCE).

**METHODS:** A high sensitive CO<sub>2</sub> analyzer was used to measure the TCE. TCE on 31 levels of meridian points and control points along stomach meridian on leg, large intestine meridian on arm (30) and pericardium meridian on whole course (22) were measured. During needling Jianshi (P5), the changes of TCE on distal side, proximal side and outside of the pericardium meridian were measured in 20 healthy people. TCE on 24 source points of twelve meridians in 30 healthy people and some related source points in patients were measured. TCE on source points, connecting points and sea points in 20 healthy cases were measured. Acupoints and reference points (no opening time) were measured on the opening time and non opening time according to day prescription in midnight-noon Ebb-flow law in 15 healthy people. The relation between TCE and skin temperature and TCE change after muscular exercise were also studied.

**RESULTS:** The mean TCE on the meridians was significantly higher

( $P < 0.05$ , same below) than control points. About 40% levers showed significantly higher TCE on meridian points than on control points among which two third were acupoints, mostly were Jing point and He point where Qi were rich. TCE increased significantly in both the meridian and control points during the needling, while moderately increased on the meridian line, particularly the proximal direction. The correlative coefficient (CC) between the points along pericardium meridian was 0.65 between acupoints which was significantly higher than 0.56 between non acupoints. For the 24 source points, CC between the points on same meridian, exterior meridian and internal meridian, same named hand and foot meridian and normal meridian were 0.81, 0.65, 0.51 and 0.38 respectively with significant difference. The mean CC between connecting points was 0.67, significantly higher than 0.61 between source points and 0.56 between sea points. The imbalance degree (ID) between left and right meridian points, Yin and Yang meridian points and same named hand and foot meridian points were 13.6%, 17.6% and 19.6% respectively, while ID was 30.2% in patients, significantly higher than in healthy people. For midnight-noon law, TCE relative to the reference points on the opening time was 1.25 which was significantly higher than 1.08 before the opening time. The certain correlation ( $r = 0.19$ ,  $P < 0.01$ ) between TCE and skin temperature and the increase after muscular exercise illustrate that TCE can indicate the energy metabolism level on meridians.

**CONCLUSION:** TCE is an ideal index to show the feature of acupuncture and meridians and may widely be used in the study and practice of traditional Chinese medicine.

**Key words:** Acupuncture; Meridians; Transcutaneous CO<sub>2</sub> emission; Traditional Chinese medicine

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## Experimental study of the antitumor effect of phosphorus-32 glass microspheres on the tumor loaded nude mice

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### Abstract

**AIM:** To evaluate the pharmacological effect of phosphorus-32 glass microspheres (32P-GMS) injected into the implanted human liver cancer cell mass in nude mice.

**METHODS:** Fifty two Balb/ctumor loaded nude mice were allocated into treatment group ( $n = 38$ ) and control group ( $n = 14$ ), in the former group different doses of 32P-GMS were injected into the tumor mass, while in the latter group 31P-GMS or no treatment were given instead of 32P-GMS. After dynamically observing the growth of tumor for day 3-28, the experimental animals were killed

in batches, the tumor and its nearby tissues were examined by light and electronic microscopy.

**RESULTS:** In comparing with the control group, the treatment group showed the tumor inhibiting rates of 59.7%-93.6% (Variance analysis of the mean weight of different doses and control group after square root correction,  $F = 579.62$ ,  $P < 0.01$ ). As the tumor mass attained the absorbed dose of 7320 Gy, the tumor cells were completely destroyed and at this maximal dose in one case, the epithelial tissue neighboring to this mass showed the signs of metaplasia. When the absorbed doses ranged from 1830 Gy to 3660 Gy, most of the tumor cells showed the evidences of injury or necrosis, and some well differentiated tumor cells appeared. As the absorbed dose being 366 Gy or less, some tumor cells remained in active proliferative stage with a lot of fibroblasts and lymphocytes presented in the neighboring interstitial tissues.

**CONCLUSION:** When the experimental model of implanted human liver cancer cells received 32P-GMS of 1830-3660 Gy, it produces excellent anticancer action without any injury to the normal neighboring tissues and the prominent anticancer effect is found within day 3 after intratumor injection.

**Key words:** Liver neoplasms/pathology; Phosphorus-32 glass; Microspheres; Radiology, interventional; Antineoplastic agents; Mice, nude; Neoplasm transplantation; Neoplasms, experimental

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## Hepatitis B virus infection status in the peripheral blood mononuclear cells of newborns of hepatitis B surface antigen positive mothers

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### Abstract

**AIM:** To study the hepatitis B virus (HBV) status in peripheral blood mononuclear cells (PBMC) and its relationship with serum HBV infection in newborns of hepatitis B surface antigen (HBsAg) positive mothers.

**METHODS:** Blood specimens were collected by femoral puncture from newborns of HBsAg positive mothers within 24 h after birth between February, 1997 and May, 1998. All sera were examined for HBV DNA and HBsAg by nested polymerase chain reaction (nPCR) and enzyme linked immunosorbent assay (ELISA). PBMC were separated from above blood specimen of newborns. Fifty five PBMC smear of newborns were obtained whose sera were HBV DNA

positive and 38 PBMC smear were randomly selected from newborns whose sera were HBV DNA negative. These Ninety-three smear of newborns PBMC at birth were detected for HBV DNA by *in situ*-polymerase chain reaction (IS PCR) and in situ hybridization (ISH) using digoxin labelled HBV DNA probe.

**RESULTS:** Twenty-seven (49.09%) out of 55 HBV DNA positive newborns sera had HBV DNA in PBMC and 4 (10.53%) out of 38 HBV DNA negative newborns sera were detected for HBV DNA in their PBMC by ISH. Sixty-two HBV DNA negative newborns PBMC by ISH were examined for HBV DNA by IS PCR. Ten (35.71%) out of 28 HBV DNA positive newborns sera had HBV DNA in their PBMC. Two (5.88%) out of 34 HBV DNA negative newborns sera were found HBV DNA in their PBMC. Total positive rates of PBMC HBV DNA (by ISH and/or IS PCR) were 67.27% (37/55) in those newborns with HBV DNA positive sera and 15.79% (6/38) in those newborns with HBV DNA negative sera.

**CONCLUSION:** HBV DNA in PBMC were found in most of newborns who had HBV DNA positive sera. But HBV DNA in PBMC also were positive in some of newborns who were negative for HBV DNA in their sera at birth. It suggests that intrauterine HBV infection may be demonstrated only by HBV infection in their PBMC and should be served as diagnosis index for intrauterine HBV infection. HBV infection in PBMC may play some role in HBV intrauterine infection and its persistence, but it needs to study furthermore.

**Key words:** Hepatitis B virus; HBsAg; Newborns

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E- Editor: Zhang FF





## Local radiative treatment of hepatocellular cancer with phosphorus-32 glass microspheres to enhance the efficacy of hepatic artery chemoembolism and possibly related with MDR expressed P-glycoprotein

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### Abstract

**AIM:** To investigate the local effect of phosphorus-32 glass microspheres (32P-GMS) on hepatocellular cancer and its relation with chemoembolism.

**METHODS:** (1) Thirty-two BALB/c nu/nu nude mice were divided randomly into four groups, control group and 3 treatment groups. Every mouse was implanted with human liver cancer cell line subset (H-CS). 32P-GMS amalgamated in iodine oil was injected directly into the tumor mass. After 2 wk, all animals but those in the control group, were injected with 32P-GMS in the dosage of 880 cGY, 1760 cGY and 3520 cGY for mouse groups I, II and III respectively. The histological reactions of tumor mass were observed; multidrug resistance (MDR) expressed p-glycoprotein was detected by flow cytometry. (2) Forty three patients with hepatocellular carcinoma based on the evidence from B sonography or CT and serum AFP > 400 ng/mL or cytological and histological evidences in some cases with the negative AFP were divided randomly into two groups, group

I treated with 32P-GMS (absorbed dose of 50-100 Gy) alone, group II treated with 32P-GMS and chemotherapeutics (half-dosage, doxorubicin 20 mg/m<sup>2</sup>, cisplatin 30 mg/m<sup>2</sup>). 32P-GMS was injected through intra hepatic artery in these cases with single massive type and multi-nodular type. Every patient was repeatedly treated with this method for 2-3 times. For evaluating the therapeutic results. The modified WHO criteria for tumor therapy standard is the.

**RESULTS:** (1) Animal bearing tumors showed that the mass decreased markedly and the inhibitive rates attained 66.53%, 83.06% and 91.53% in the absorbed doses ranged from 880 Gy, 1760 Gy and 3520 Gy respectively ( $P < 0.05$ , ANOVA). Flow cytometry detected MDR expressed p-glycoprotein decreased from  $68.2 \pm 4.6$  in control to  $43.6 \pm 3.4$ ,  $35.3 \pm 4.3$  and  $33.2 \pm 3.8$  ( $P < 0.05$ , compared with control,  $t$ -test) in the cells from the tumors. (2) The foci in group I revealed decreased in size dramatically with effective rate of 71.43%, compared with 86.36% in the group II ( $P < 0.05$ , Chi-square test). The median survival period of the patients were 532 and 564 d in group I and II respectively (Kaplan-Meier method).

**CONCLUSION:** The enhanced effectiveness of the local treatment of 32P-GMS conjugated with chemotherapeutics may be related to the local action on the MDR expressed p-glycoprotein.

**Key words:** Liver neoplasms/radiotherapy; Liver neoplasms/drug therapy; Phosphorus-32 glass microspheres; Chemoembolization, therapeutic; P-glycoprotein; Multidrug resistance

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## Study on the dynamic alterations of serum HA in rats with carbon Tetrachloride-induced liver fibrosis

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### Abstract

**AIM:** To study the clinical significance of alterations of serum hyaluronic acid in rats with carbon tetrachloride induced liver fibrosis.

**METHODS:** Rat liver fibrosis model was induced by carbon tetrachloride (CCl<sub>4</sub>). The rats were divided into five groups: group 1 (control): 0 wk with no CCl<sub>4</sub>-inducing; group 2, 3, 4 and 5: 3, 6, 9 and 12 wk after CCl<sub>4</sub>-induction respectively. Serum HA level was

analysed among various live rbfibrosis groups and control, and then compared the HA findings with the hepatic histopathology.

**RESULTS:** During rat liver fibrosis, serum HA levels of the liver fibrosis groups (group 2: 7.98 ng/mL; group 3: 20.10 ng/mL; group 4: 229.73 ng/mL; group 5: 324.74 ng/mL) were significantly higher than that of control group (group 1: 0.21 ng/mL) ( $P < 0.01$ ), in which group 4 and group 5 are much higher 1094 times (229.73 ng/mL/0.21 ng/mL) and 1546 times (324.74 ng/mL/0.21 ng/mL) than group 1 respectively. When compared with each other, the serum HA levels are 38 times (7.98 ng/mL/0.21 ng/mL;  $P < 0.01$ , group 2 vs group 1); 2.5 times (20.10 ng/mL/7.98 ng/mL;  $P < 0.01$ , group 3 vs group 2); 11.4 times (229.73 ng/mL/20.10 ng/mL;  $P < 0.01$ , group 4 vs group 3); 1.4 times (324.74 ng/mL/229.73 ng/mL;  $P < 0.01$ , group 5 vs group 4) respectively.

**CONCLUSION:** The results demonstrated that the dynamic alterations of serum HA play an important role in the early clinical diagnosis and staging of liver cirrhosis.

**Key words:** Hyaluronic acid/blood; Liver fibrosis; Rats; Sandwich immunoassay; Carbon tetrachloride; Immunohistochemistry

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## Components and distributions of cytoskeleton network in neoplastic Hep G<sub>2</sub> cells extracted with triton X-100 and (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>

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### Abstract

**AIM:** To explore the components and the distributions of the cytoskeleton network in neoplastic Hep G<sub>2</sub> cells extracted with triton X-100 and (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>.

**METHODS:** Using the mouse lung adenocarcinoma cell sublines (C<sub>6</sub>/C<sub>7</sub>) with low and high metastasis as a control, the human hepatocellular carcinoma cell line (Hep G<sub>2</sub>) as well as the cell sublines (C<sub>6</sub>/C<sub>7</sub>) was extracted with triton X-100 and/or (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, then stained with Coomassie blue R250 or labeled with immunoenzymatic technique to identify the cytokeratin-type or vimentin-type intermediate filament components and study the distributions of cytoskeleton comparatively.

**RESULTS:** Extracted with triton X-100 and/or (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, then stained with Coomassie blue R250, the cells' cytoskeleton network were showed clearly; still it was very difficult to identify the variations of the cytoskeleton network in morphology by light microscopy when the same cells was extracted with the different extraction above; compared with the low metastasis cells (C<sub>7</sub>), most of the

high metastasis cells (C<sub>6</sub>) were likely showed that the distribution of the cytoskeleton network was more irregular and uneven as well as gathering on one side to the cell nucleus, and so did a few of Hep G<sub>2</sub> cells (the percentage of regular and even distribution of cytoskeleton, C<sub>6</sub>:  $8.0 \pm 1.0$ ; C<sub>7</sub>:  $84.0 \pm 2.0$ ; Hep G<sub>2</sub>:  $96.0 \pm 2.0$ ;  $n = 500$ ;  $\chi^2$  test,  $P < 0.01$ ). Moreover, extracted with triton X-100 and (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, then labeled by immunoenzymatic technique, the mouse lung adenocarcinoma sublines (C<sub>6</sub>/C<sub>7</sub>) were positive for cytokeratin antibody only, but the hepatocellular carcinoma cell (Hep G<sub>2</sub>) was positive for both cytokeratin and vimentin antibodies. Besides these, in the same cells, the distribution of the intermediate filament network showed by the immunoenzymatic technique was nearly keeping with that of the cytoskeleton network showed by Coomassie blue R250 stain.

**CONCLUSION:** (1) It is very difficult to identify the variations of the cytoskeleton network in morphology by light microscopy when the same cell was extracted with triton X-100 and/or (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> then stained with Coomassie blue R250 in comparison. (2) The characterizing distribution of the intermediate filament as well as the cytoskeleton network that was irregular, uneven and gathering on one side to the nucleus in neoplastic cell might provide a valuable information for studying tumor metastasis. (3) In analysing the components of intermediate filament protein of malignant tumor cells, the heterogenous proteins (co-expression) must be taken into consideration.

**Key words:** Cytoskeleton; Liver neoplasm; Adenocarcinoma; Immunoenzyme technique; Triton X-100; (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>; Keratin; Vimentin

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Zhang HW. Components and distributions of cytoskeleton network in neoplastic Hep G<sub>2</sub> cells extracted with triton X-100 and (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>. *World J Gastroenterol* 2000; 6(Suppl3): 101 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/101.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.101>

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## Plasma level of nitric oxide and the expression of inducible nitric oxide synthase in human hepatocellular carcinoma

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### Abstract

**AIM:** To study the relationship between nitric oxide (NO), nitric oxide synthase (NOS) and human hepatocellular carcinoma (HCC).

**METHODS:** Plasma NO<sub>2</sub>/NO<sub>3</sub> was measured by Griess reaction in 122 patients with chronic hepatitis (CH) and compensated liver cirrhosis (LC), among which 62 patients were complicated with HCC (CH = 28, LC = 34), and the rest 60 patients were not (CH = 29, LC = 31). Thirty healthy persons served as normal controls (NC). There were no prominent differences among the groups in sex, age and the ratio of CH to LC. The expression of inducible nitric oxide synthase (iNOS) in HCC ( $n = 40$ ), CH ( $n = 30$ ) and LC ( $n = 30$ ) samples obtained from liver biopsy or operation was compared with that in normal liver tissues by using immunohistochemistry. Ten normal liver tissue samples obtained from liver operation served as normal controls.

The samples were fixed in formalin and embeded in paraffin. Anti-iNOS antibody (Santacruz company) was served as antibody- I in immunohistochemical assay of iNOS in tissue.

**RESULTS:** Plasma NO<sub>2</sub>/NO<sub>3</sub> level in normal was  $11.5 \pm 4.2 \mu\text{mol/L}$ . The plasma level of NO<sub>2</sub>/NO<sub>3</sub> in CH ( $58.6 \pm 17.4 \mu\text{mol/L}$ ) and LC ( $38.7 \pm 10.6 \mu\text{mol/L}$ ) accompanied with HCC was notably higher than in those patients without HCC (CH:  $24.8 \pm 9.4 \mu\text{mol/L}$ ; LC:  $22.3 \pm 8.7 \mu\text{mol/L}$ ,  $t = 2.901, 2.756, P < 0.01$ ). Plasma NO<sub>2</sub>/NO<sub>3</sub> level in HCC accompanied with CH was significantly higher than in those accompanied with LC ( $t = 2.216, P < 0.05$ ). Positive rate of iNOS in HCC, CH and LC was 95%, 93% and 57% respectively. iNOS was not expressed in normal liver tissues. The expression level of iNOS in HCC ( $\chi^2 = 17.4, P < 0.001$ ) and CH ( $\chi^2 = 11.64, P < 0.025$ ) was much higher than in LC.

**CONCLUSION:** Plasma NO<sub>2</sub>/NO<sub>3</sub> level significantly increased in patients with HCC and the immunohistochemical staining of iNOS was positive. This suggests that the liver secretes NO in the higher level may participate in the carcinogenesis and progression of HCC.

**Key words:** Liver neoplasms; Nitric oxide/blood; Nitric oxide synthase; Hepatitis; Liver cirrhosis; Immunohistochemistry; Hepatoma

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## Determination of cholesterol in human biliary calculus by TLC scanning

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### Abstract

**AIM:** To study the physico-chemical properties of biliary calculus and the relationship between the calculus formation and the phase change of liquid crystal, providing the best evidence for the biliary calculus prevention and treatment.

**METHODS:** The cholesterol contents in thirty one cases of biliary

calculus in Kunming were determined by double-wave-length TLC scanning with high efficiency silicagel films.

**RESULTS:** Under magnifiers, the granular biliary calculus from 31 patients were classified according to their section structures and colours, as cholesterol cholelith, 25 cases; bilirubin cholelith, 4 cases and compound cholelith, 2 cases. By TLC scanning, it was found that the content of cholesterol in human biliary calculus was 71%-100%, about 80% cholesterol bilestones whose cholesterol content was more than 90% being pure cholesterol bilestones.

**CONCLUSION:** Cholesterol bilestone is the main human biliary calculus in Kunming, which was in accordance with X-ray analysis. Compared with the related reports, it is proved that the proportion of cholesterol bilestones to biliary calculus is increasing because of the improved life standard and the decrease of bilirubin bilestones resulted from bile duct ascariasis or bacteria infection in China since 90 s, and that the increase of cholesterol in-take leads to the increase of cholesterol metabolism disorder.

**Key words:** Biliary calculus; Cholesterol; TLC scanning; Cholelithiasis; Food habits

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## Effect of glutathione on gastric mucosal lesion induced by restraint Water-immersion in rats

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### Abstract

**AIM:** To determine the effect of glutathione (GSH) on stress gastric mucosal lesion.

**METHODS:** The stress gastric mucosal lesion as produced by restraint water-immersion in rats and gastric mucosal lesion, gastric mucosal GSH content, gastric acid secretion and gastric barrier mucus secretion were examined. We also observed the effect of GSH on gastric mucosal lesion and the effect of N-ethylmaleimide (NEM) and indomethacin on GSH protection. Comparisons between two

groups were made using the Student's *t* test.

**RESULTS:** GSH (100 and 200 mg/kg) intraperitoneally protected against stress gastric mucosal lesion ( $P < 0.001$  and  $P < 0.001$ ). Restraint water immersion stress significantly reduced gastric mucosal GSH content ( $P < 0.001$ ), but pretreatment with GSH (100 mg/kg) had no effect on gastric mucosal GSH content ( $P > 0.05$ ). The preinjection of NEM (10 mg/kg. sc.), a sulfhydryl blocking reagent, or indomethacin (5 mg/kg, im.), a cyclooxygenase inhibitor, had no effect on protection of GSH ( $P > 0.05$ ). GSH (100 mg/kg) significantly increased secretion of gastric barrier mucus ( $P < 0.05$ ), but had no effect on secretion of gastric acid in restraint water immersed rats ( $P > 0.05$ ).

**CONCLUSION:** GSH can inhibit the formation of gastric mucosal lesions induced by restraint water-immersion. The protective effect of GSH was due, in part, to promoting the secretion of gastric barrier mucus, but not to suppress the gastric acid secretion. The protection effect of GSH has no relation with gastric mucosal GSH and PGs.

**Key words:** Gastric mucosal lesion; Glutathione; Stress; Gastric acid; Gastric mucus; Rats

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## Investigation on infection of hepatitis G virus in 105 cases of drug abusers

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### Abstract

**AIM:** To investigate the infection of hepatitis G virus (HGV) in 105 cases of drug abusers.

**METHODS:** One hundred and five heroin addicts including 85 males and 20 females, aged from 17a to 45a old, mean age  $26.3a \pm 5.8a$  were observed. Duration of the drug abusing was ranged from 5 mo to 168 mo with mean  $37.5 \pm 23.6$  mo. Seventy-five cases accepted the drug by intravenous injection only, 30 others by both intravenous and scalded inhaling ways. All cases had no history of blood transfusion. (1) Detection of HGV-RNA: total RNA was extracted from serum by the acid guanidinium thiocyanate-phenol-ethanol method, the 5' terminal non-coded region of HGV-RNA was amplified by nested reverse transcription-PCR. (2) anti-HAV-IgM, HBsAg, anti-HCV, HDAg, anti-HD, anti-HD-IgM and anti-HEV were detected by

ELISA. Reagents were provided by Shenzhen Moon Bay Biologic Company. (3) Hepatic functions were determined by Hitachi 7510 automatic analyzer.

**RESULTS:** (1) Incidence of HGV infection: 25 (23.8%) of 105 drug abusers, 21 men and 4 women, were infected with HGV. The mean drug taking time of HGV infected cases were  $38.6 \pm 19.9$  mo, it is similar with the mean duration of drug abusing,  $37.7 \pm 24.6$  mo ( $P > 0.05$ ), of those cases without HGV infection. (2) Superinfection of HGV with hepatitis B virus (HBV) or hepatitis C virus (HCV): 26 (24.7%) of 105 addicts were infected with HBV and 68 (64.8%) with HCV. Among 25 cases infected with HGV, 8 (32%) of them were infected with HGV alone, 6 (24.0%) were superinfected with HCV, 2 (8.0%) with HBV and 9 (36.0%) with HCV and HBV. Thus, 17 (68.0%) of 25 cases infected with HGV were superinfected with HCV and/or HBV. (3) Hepatic function tests: The total serum bilirubin levels of all 105 cases were less than  $20 \mu\text{mol/L}$ . The ALT levels of 30 (28.6%) cases were more than 40 U/L and among them, 1 case was infected with HGV only, 1 was superinfected with HGV and HBV, 3 with HGV and HCV, 7 with HGV, HBV and HCV respectively. Meanwhile also among the cases with abnormal increased ALT level, 1 case infected with HBV, 15 with HCV, 2 superinfected with HBV and HCV.

**CONCLUSION:** The results of this investigation reveal that in drug abusers the incidence of viral hepatitis is in the order of HCV, HBV and HGV.

**Key words:** Hepatitis G virus; Heroin dependence; Substance abuse polymerase chain reaction; Serodiagnosis; Hepatitis C virus

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## Finding a new serovar of *Salmonella. diarizonde* from Frozen large yellow croaker

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### Abstract

**AIM:** To determine the serumal type of a species of salmonella which was isolated from imported frozen large yellow croaker.

**METHODS:** Aseptically weigh 25 g gill and viscera of the fish into sterile wide-mouth 500 mL jar. Add 225 mL sterile buffered protein broth (BP) and incubate 18-24 h at  $36 \pm 1$  °C. Gently shake incubated sample mixture, and transfer 1 mL to 10 mL selenite cystine broth (SC), add additional 1 mL to 10 mL tetrathionate broth (TTb). Incubate 18-24 h at  $36 \pm 1$  °C. Streak 1 loopful of incubated SC on selective media plates of DHL. Repeat with 1 loopful of incubated TTb and incubate plates 24 h at  $36 \pm 1$  °C. From DHL, pick with needle 3 typical Salmonella colonies-colorless with black centers. Inoculate Ktizer's Iron agar (KIA) and Lysine motility agar (LMA) for screening. Finally they are suggested to be Salmonella. Then apply

biochemical and serological identification tests to 3 presumptive positive samples reexamined by China National Institute for the Control of Pharmaceutical and Biological Products and certified by WHO Collaborating Center for Reference and Research on Salmonella.

**RESULTS:** According to the biochemical reaction, accordance with the characteristics of Salmonella and the ability to utilize malonate, dulcitol negative, ONPG positive, KCN negative *etc.* the specialities can be primarily determined as subgroup III. Basing on the results of serological examinations it can be defined as O<sub>50</sub> group. Its H antigen revealed a phase H<sub>266</sub>, Z<sub>57</sub>, Z<sub>68</sub>, but the another phase still remained undiscovered. The reexamining result of China National Institute for the Control of Pharmaceutical and Biological Products (checking No. SJKS 961037): Through Gram stain, culture, biochemical and serological examinations this bacterium remained unverified and suggested to send the specimen to WHO Salmonella Central Laboratory for checking up. WHO Collaborating Center for Reference and Research on Salmonella appraised this species as a new serumal type of *Salmonella. diarizonde* with serumal type 50:K:Z<sub>57</sub>:Z<sub>68</sub> NT (checking No. 8687).

**CONCLUSION:** The species of Salmonella was certified to be a newly discovered serovar of Salmonella.

**Key words:** *Salmonella. diarizonde*; New serovar; Frostbite; Croaker

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Huang XR, Liao LX, Zheng GK, Ji GX. Finding a new serovar of *Salmonella. diarizonde* from Frozen large yellow croaker. *World J Gastroenterology* 2000; 6(Suppl 3): 106 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/106.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.106>

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## Mechanism of iNOS gene modulation on acupuncture and moxibustion treatment for ulcerative colitis in rats

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### Abstract

**AIM:** To observe the effect of acupuncture and moxibustion on the expression of IL-1 $\beta$  and iNOS mRNA in rats, with ulcerative colitis.

**METHODS:** Surgical samples of fresh human colonic mucosa was homogenized by adding appropriate amount of normal saline and centrifuged at 3000 r/min. Protein content of the supernatant was measured and then mixed with Freund adjuvant, and injected into the plantae of the rats models, then into the plantae, dorsa, inguen and abdominal cavities (no Freund adjuvant for the last injection) on the 10<sup>th</sup>, 17<sup>th</sup>, 24<sup>th</sup> and 31<sup>st</sup> day respectively. When serum titer of anti colonic antibody has reached to a certain level, 20 mL/L formalin and antigen fluid (no Freund adjuvant) were administered by enema to set up ulcerative colitis rat mode. The animals were randomly divided into four groups: model control group (MC = 8), electroacupuncture group (EP = 8), herbs partition moxibustion group (HPM = 8) and normal control group (NC = 8). HPM: Mosa

cones made of refined mugwort floss were placed on the medicinal pads (medicinal pad dispensing: Radix Aconiti Praeparata, cortex Cinnamomi, etc.) for qihai (RN6) and tianshu (ST25, bilateral) and ignited. Two moxa cones were used for each acupuncture once a day and 14 times in all. EP: tianshu (bilateral) and qihai were stimulated by the intermittent pulse with 2 Hz frequency, 4 mA intensity for 20 min once a day and 14 times in all. After treatment, all rats were killed simultaneously. The spleen was separated and distal colon was dissected. Total tissue RNA was isolated by the guanidinium thiocyanate phenol-chloroform extraction method. RT-PCR technique was used to observe the expression of IL-1 $\beta$  and iNOS mRNA no Freund adjuvant.

**RESULTS:** IL-1 $\beta$  and iNOS mRNA were not detected in the spleen and colonic mucosa of NC rats, while they were significantly expressed in those of MC rats. IL-1 $\beta$  and iNOS mRNA were markedly lower in EP and HPM rats than those in MC rats. There were no significant difference in the levels of IL-1 $\beta$  and iNOS mRNA between EP and HPM rats. The amount of IL-1 $\beta$  and iNOS mRNA was nearly the same between the spleen and colon in different groups.

**CONCLUSION:** Acupuncture and moxibustion greatly inhibited the expression of IL-1 $\beta$  and iNOS mRNA in the ulcerative colitis rats.

**Key words:** Colitis, ulcerative/therapy; Acupuncture therapy; gene expression; RNA; Ubterkeukin-1; Polymerase chain reaction; Nitric oxide; Rats

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Wu HG, Lu HB, Zhao C, Shi Z, Liu HR, Chen HP. Mechanism of iNOS gene modulation on acupuncture and moxibustion treatment for ulcerative colitis in rats. *World J Gastroenterology* 2000; 6(Suppl 3): 107 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/107.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.107>

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## Quantitative detection of nitric oxide (NO) in apoptosis of esophageal carcinoma cell induced by arsenite

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### Abstract

**AIM:** To determine NO, NO synthase (NOS) and NOSmRNA of the esophageal carcinoma cells (SHEEC1) in apoptotic process induced by As<sub>2</sub>O<sub>3</sub> and to explore the relationship between NO and apoptosis.

**METHODS:** The apoptosis of the cell line (SHEEC1) was induced by arsenite (As<sub>2</sub>O<sub>3</sub>, 5 μmol/L and 10 μmol/L). In the process, at 2 h, 4 h, 8 h, 16 h and 24 h after administration of As<sub>2</sub>O<sub>3</sub>, NO production in cultural medium was detected quantitatively by spectrophotometry;

NOS II was detected by immunohistochemistry and NOS mRNA by *in situ* hybridization (ISH). The cells at endpoint of the experiment were examined under transmitted electron microscope (TEM) for apoptosis.

**RESULTS:** The amount of NO released from SHEEC1 were increased from the basal condition ( $0.68 \times 10^{-2}$  μmol/L) up to the high level ( $2.38 \times 10^{-2}$  μmol/L) at h 16. The increment of NOS II was found after administration of As<sub>2</sub>O<sub>3</sub>; the intracytoplasmic ISH signals of NOSmRNA in small size was found firstly at 4 h, and then became highly predominant. Apoptotic changes of SHEEC1 occurred at 24 h under TEM.

**CONCLUSION:** After administration of As<sub>2</sub>O<sub>3</sub>, NO released from cultured SHEEC1 cells was detected with increasing amount up to 16 h. The expression of NOS II and transcription of NOSmRNA are upregulated. The present findings suggest a concept that the NO may be a mediated and effective factor in apoptosis induced by As<sub>2</sub>O<sub>3</sub>.

**Key words:** Nitric oxide; Esophageal neoplasms; Apoptosis; Arsenic; Immunohistochemistry; In site; Hybridization; Microscopy, electron

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## Protective effect of Diltiazem on digestive organs in hemorrhagic-shock canine

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### Abstract

**AIM:** To investigate the protective effects and mechanism of Diltiazem (Dil) on liver, pancreas and small intestine in hemorrhagic shock canine.

**METHODS:** The canines were bled to a mean arterial pressure (MAP)

of 5.33-6.67 kPa for 30 min to establish the shock model. During the shock state, the dogs received either water-soluble calcium blocker Dil or saline solution. The MAP was kept at this level for 90 min, then the total blood which was bled previously was reperfused. The total observation time of the experiment was 240 min.

**RESULTS:** Dil could significantly increase MAP from 150 min to 240 min ( $P < 0.01$ ) and the activity of superoxide dismutase (SOD) of pancreas tissue ( $P < 0.01$ ), and it could also decrease the content of malondialdehyde (MDA) in liver, pancreas and small intestine tissues ( $P < 0.01$ ) and the activity of SOD of the liver and small intestinal tissues ( $P < 0.01$ ) in the canines. Electron microscopic data indicated that the ultrastructures of liver, pancreas and small intestine tissues were normal in Dil group.

**CONCLUSION:** Dil can protect the structure and function of the liver, pancreas and small intestinal in hemorrhagic-shock canine.

**Key words:** Calcium channel blockers; Diltiazem; Shock, hemorrhagic; Malondialdehyde; Digestive system; Oxygen free radical

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Xia ZX, Zhang YQ, Liu YM, Wei L, Li YS, Liu ZJ. Protective effect of Diltiazem on digestive organs in hemorrhagic-shock canine. *World J Gastroenterology* 2000; 6(Suppl 3): 109 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/109.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.109>

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## Endoscopic ultrasonography guided pancreatic pseudocysts drainage by Self-made stent

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### Abstract

**AIM:** Endoscopic ultrasonography (EUS) guided pancreatic pseudocysts drainage is an ideal therapeutic procedure. We perform it in just one step by using the self made drainage stent.

**METHODS:** We made an aperture at the tip of the needle outer sheath, and tied the outer sheath with the self-made stent by suture. EUS-guided pancreatic pseudocysts drainage was performed in five patients. No patient had visible endosmotic bulge on the gastrointestinal wall. Mean pseudocyst diameter was

4.5 cm (pancreatic head 1, body 2, tail 4). We determined the optimal site for puncture and advanced the needle and stent into cyst. Taking out the needle made the stent separated from the sheath.

**RESULTS:** No hemorrhage happened among these patients. One patient suffering from fever up to 40 °C recovered within two days after operation. All the cysts diminished inside after 7 d and resolved completely after 6.8 wk in average. Cyst resolution was accompanied by symptomatic improvement in all patients. During a follow-up of 6 mo no cyst recurred.

**CONCLUSION:** EUS guided drainage of pseudocysts is a safe and effective procedure, which performs the just in one process and diminishes the patients' distress.

**Key words:** Endoscopy, digestive system; Pancreatic pseudocyst/diagnosis; Tomography, X-ray computed; Pancreatic pseudocyst/therapy; Stents

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## Effects of tachyplesin on the morphology and ultrastructure of the human gastric carcinoma cell line BGC-823

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### Abstract

**AIM:** To investigate the morphological and ultrastructural changes in the human gastric carcinoma cell line BGC-823 after being treated with tachyplesin.

**METHODS:** Tachyplesin was isolated from acid extracts of Chinese horseshoe crab (*Tachyplesus tridentatus*) hemocytes. BGC-823 cells and the cells treated with 2.0  $\mu\text{g/mL}$  tachyplesin were examined respectively with light microscope, scanning and transmission electron microscope.

**RESULTS:** BGC-823 cells had undergone restorative morpho-

logical and ultrastructural changes after being treated with 2.0  $\mu\text{g/mL}$  tachyplesin. The cells tended to be flat and spread, and their volume enlarged, nucleo-cytoplasmic ratio decreased, the shape of nucleus became relatively regular, the number and volume of nucleolus decreased, heterchromatin decreased while euchromatin increased, the number of mitochondria increased with their structure relatively consistent, Golgi apparatus turned to be typical, rough endoplasmic reticulum increased, polyribosome decreased, microvilli and filopodia reduced while lamellipodia increased.

**CONCLUSION:** Tachyplesin could change the malignant morphological and ultrastructural characteristics of human gastric carcinoma cells effectively and had certain effects on inducing differentiation of human gastric carcinoma cells.

**Key words:** Horseshoe crabs; Stomach neoplasms; Hemocytes/ultrastructure; Heterochromatin; Microscopy, electron; Tachyplesin

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Li QF, Quyang GL, Li CY, Hong SG. Effects of tachyplesin on the morphology and ultrastructure of the human gastric carcinoma cell line BGC-823. *World J Gastroenterology* 2000; 6(Suppl 3): 111 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/111.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.111>

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## Study on liver targeting 5-fluorouracil solid lipid nanoparticles

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### Abstract

**AIM:** To prepare 5-fluorouracil solid lipid nanoparticles (5-FuE-SLN) with liver targeting.

**METHODS:** 5-Fu was employed as model drug to acylate with stearyl chloride and obtain 5-Fu precursor N1-stearyl-5-Fu (5-FuE). The precursor was determined by nuclear magnetic resonance and

infrared spectrometry and used to prepare 5-FuE-SLN by the method of physical agglomeration. Transmission Electron Microscopy (TEM) was employed to study the shape, mean size and particle distribution of 5-FuE-SLN. The drug loading, and releasing characteristics *in vivo*, the drug distribution and pharmacokinetics *in vivo* were also investigated by HPLC method.

**RESULTS:** The average diameter was 240.19 nm, and the drug loading was 20.53%. The releasing characteristics *in vivo* was fitted to first-order pharmacokinetic model. The distribution of 5-FuE-SLN in mice showed that 5-FuE-SLN had significant liver targeting being compared with 5-Fu injection. The concentration of 5-FuE-SLN group in mice liver was double over that of control group. The main pharmacokinetics parameters in rabbits were as follows:  $V_c = 0.04336 \text{ L} \cdot \text{kg}^{-1}$ ,  $T_{1/2\beta} = 1.2834 \text{ h}$ ,  $CL = 0.1632 \text{ L} \cdot \text{h}^{-1}$ .

**CONCLUSION:** 5-FuE-SLN has the characteristic of liver targeting. Using 5-Fu precursor to enhance its liposoluble properties and the method of preparation presented in this paper seems to have significant advantages and important reference value.

**Key words:** Liver; Fluorouracil; Solid lipid nanoparticles; Drug delivery systems; Pharmacokinetics

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## ATRA inhibits experimental liver metastasis of gastric cancer cells in nude mice

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### Abstract

**AIM:** To study the effects of ATRA on experimental liver metastasis of gastric cancer cells.

**METHODS:** MGc80-3 and SGC-7901 cells were injected into

spleen subcapsule of nude mice, who were subsequently administrated with ATRA every other day. Food intake and body weight of mice were measured weekly. After six weeks, the nude mice were executed, tumors in spleen and liver were examined pathologically, microtumor vessel density (MVD) was accounted by immunohistochemical method and serum CEA was measured by radioimmunoassay.

**RESULTS:** Nude mice administrated with ATRA, the growth of spleen tumor and its metastatic ability to liver were inhibited, the metastatic rate was decreased by 33.3% (MGc80-3) and 50.0% (SGC-7901). Spleen MVD and liver MVD were reduced by 28.6% and 22.9% (MGc80-3), 23.7% and 37.6% (SGC-7901), respectively. The serum CEA was lowered by 43.4% (MGc80-3).

**CONCLUSION:** ATRA can effectively inhibit the experimental liver metastasis of gastric cancer cells, which is relevant with the decrease of MVD and CEA.

**Key words:** Stomach neoplasms; Tretinoin; Liver neoplasms; Liver metastasis; Immunohistochemistry; Mice, nude

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Chen YQ, Wu Q, Chen ZM, Chen F, Su WJ. ATRA inhibits experimental liver metastasis of gastric cancer cells in nude mice. *World J Gastroenterology* 2000; 6(Suppl 3): 113 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/113.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.113>

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## Seven-years follow-up on trial of Interferon alpha in patients with HCV RNA positive chronic hepatitis C

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### Abstract

**AIM:** To study the long term efficiency of therapy with Interferon alpha (IFN- $\alpha$ ) in patients with HCV RNA positive chronic hepatitis C.

**METHODS:** Ten patients were enrolled in the study, whose age 31-62 year (mean 53 year), course 6-72 mo (mean 24 mo), of whom, 6 patients with mild CHC, 4 moderate CHC. All patients received IFN- $\alpha$  3 MU three times weekly for six to twelve months, and then followed up for seven years after the end of treatment. The results of hepatic functions and HCV RNA at the end of treatment and follow-up period in all patients were observed.

**RESULTS:** (1) At the end of treatment, clinical symptoms recovered obviously in all patients, virological response (defined as HCV RNA loss) occurred in 5 of 7 (71.4%) patients (< 60 years old) and in 1 of 3 (33.3%) patients (> 60 years old). At the end of follow-up, the rates of HCV RNA loss were 42.9% (3/7) and 33.3% (1/3), respectively, in these group. Virological sustained response (defined as HCV RNA loss at the end of treatment and follow-up) occurred in 3 of 6 (50%) patients (6-12 mo-course) and in 1 of 4 (25%) patients

(> 12 month-course). A sustained HCV RNA response was observed in 2 of 7 (28.6%) patients with IFN- $\alpha$  therapy for 6 m and in 2 of 3 (66.7%) patients with IFN- $\alpha$  therapy for more than 6 m. Of all patients, 4 patients with sustained HCV RNA response were mild CHC, 4 patients with sustained HCV RNA positive were mild CHC (2 patients), moderate CHC (2 patients), respectively; other 2 patients with HCV RNA loss at the end of treatment but recurred at the end of follow-up, were moderate CHC. (2) Bio chemically sustained response (defined as ALT normalization at the end of treatment and follow-up) was observed in 5 out of 10 (50%) patients, and these 5 patients were mild CHC, of whom, 4 patients with HCV RNA sustained negative, 1 patient with HCV RNA loss and then recurred again. Two patients with ALT normalization at the end of follow-up were one mild CHC, one moderate CHC, respectively. Other 3 patients with no response were moderate CHC, of whom, 2 patients with HCV RNA sustained positive, 1 patient with HCV RNA loss then recurred, and in these 3 patients, the lower limits of ALT were more than 121-148 U/L. (3) Of 10 patients, 3 moderate CHC patients were far from satisfactory to IFN- $\alpha$  therapy, of whom, 2 coinfectd with HBV, 1 with post-hepatitis cirrhosis.

**CONCLUSION:** The CHC patients with younger age, shorted course, and lighter liver changes in biopsy (mild CHC) have better response to IFN- $\alpha$  therapy, and the efficiency of therapy with IFN- $\alpha$  for 12 m are more satisfactory than those for 6 m. The patients with coinfectd HCV and HBV have a response to IFN- $\alpha$  therapy worse than the others.

**Key words:** Hepatitis C viruse; Hepatitis C; Interferon-alpha; Follow-up studies; RNA

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Tang BZ, Zhuang L, You J, Zhang HB, Zhang L. Seven-years follow-up on trial of Interferon alpha in patients with HCV RNA positive chronic hepatitis C. *World J Gastroenterology* 2000; 6(Suppl 3): 114 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/114.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.114>

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## Design and application of multifunctional stomach clamp

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### Abstract

**AIM:** Pylorus and pyloric vagus preserving gastrectomy (PPVPG) is an efficient operation mode for treating gastric and duodenal ulcers. For its better application and popularization, we have designed and manufactured a special multifunctional stomach clamp.

**METHODS:** The clamp has been designed carefully in view of the different sizes of the patients' stomachs and the different starting points of Latarjer nerves so as to facilitate the execution of the present operation mode, which requires the preservation of the vagus innervated pyloric region so as to make the remnant stomach maintain its normal physiological function and the vagus branches clinging antral seromuscular flap kept in proper size so that avoiding too much remaining antral mucosa is removed to cause greater difficulty in operation. With this in view, we observed and measured the distance between the Latarjer nerves distribution and the pyloric rings of 42 patients' stomachs in the course of operations. We bent an aluminum string 3 mm thick for each stomach according to the size of antral seromuscular flap and chose an optimal curvature from the 42 sizes for manufacturing the clamp. The clamp is made of 3 Cr13 stainless steel, consisting of three parts, the curved head, the fastening ring and the handle. The curved head is shaped almost exactly like the remained antral seromuscular flap. The ring at its tip

when in place fastens the two sides of the clamp so that the tissue of the stomach between will be clutched by an even force. On one side are three cuts for moving the ring upwards, each cut representing 1 mm for fastening and adjustments can be made in view of the thickness or thinness of the tissue. The handles bend backward for fighting shy of the cuts so as to facilitate the operation.

**RESULTS:** With the stomach disassociated in the light of PPVPG procedures, the clamp may easily be applied from the upper part of the Latarjer nerves. The following merits can be noted. (1) The curving line of the flap can be precisely cut. (2) Before the antrum mucosa is stripped, the submucosal injection of hemostatic salt solution can be confined without being expanded and the solution will separate muscular layer from mucous layer and helpful in stripping. (3) The bleeding of the cuts on the antral seromuscular layer being clamped and stopped. (4) The antral seromuscular flap shaped by the clamp and facilitated to strip the antrum mucosa beneath. (5) The gastric juice can be prevented from flowing to the stripped region. All these evidently facilitates the operation and shorten the time consumed. By the adjustment of its position in the operation the clamp can be applied to stomachs in different size or with different starting points of Latarjer nerves and even to those of experimental animal. Apart from applying to PPVPG, the clamp can be used for the following operations: the Bancroft operation, with the curved part directing upwards; the resection of gastric ulcer at the high portion of the stomach; the Billroth II anastomosis. The clamp has proved in good performance for 122 cases of clinical treatment, worthy to be recommended to our colleagues.

**CONCLUSION:** The clamp can be used not only for this operation mode, but also for Bancroft operation, for the resection of gastric ulcer at the proximal end of the stomach and the Billroth II anastomosis hence named the multifunctional stomach clamp.

**Key words:** Stomach clamp

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Lu YF, Li PW, Zhang XX. Design and application of multifunctional stomach clamp. *World J Gastroenterology* 2000; 6(Suppl 3): 115 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/115.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.115>

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## Relation between N-Nitrosos compound and gastric cancer - establishment of a model system and research for human gastric cancer

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### Abstract

**AIM:** To establish a model system for studying gastric carcinogenesis of MNNG, a gastric cancer related carcinogen.

**METHODS:** Cell culture transformation, PCR restriction fragment length polymorphism (PCR-RFLP), DNA blotting and immunochemical techniques and analysis of LDH isozyme and chromosome were performed.

**RESULTS:** GES-1 cells surviving by MNNG treatment were named MC ( $2 \times 10^5$  M for 24 h) and MC B ( $2 \times 10^7$  M for 7 d). The two

cell lines treated by MNNG showed more malignant than maternal cell GES-1 with the evidences of more chromosome aberrations, abnormal morphology and cytoskeleton and also gained the ability of colony formation on soft agar. C-Ha-ras gene point mutation in the 12<sup>th</sup> codon and LDH isoenzyme abnormal express were found in MC-B cells. In addition, C-met gene rearrangement was revealed by Southern blot analysis in MC-B and MC.

**CONCLUSION:** This gastric epithelial cell system is an important model system for further study of stomach cancer, MNNG had a selective effect on the cytoskeleton microfilament in human gastric epithelial cells and intimately associated with the activation of certain oncogenes and some protein.

**Key words:** Stomach neoplasms; Nitroso compounds; Carcinogens; Polymorphism; Polymerase chain reaction; Immunohistochemistry; Incidence

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Su XL, Ke Y. Relation between N-Nitrosos compound and gastric cancer - establishment of a model system and research for human gastric cancer. *World J Gastroenterology* 2000; 6(Suppl 3): 116 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/116.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.116>

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## Construction, expression and characterization of double-copy genes of truncated form of human insulin-like growth factor- I

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### Abstract

**AIM:** To increase the production of recombinant des (1-3) IGF- I by increasing the copy number of gene carried on an expression vector, and to partially purify the expressed des (1-3) IGF- I , as well as compare its bio-activity with standard IGF- I .

**METHODS:** Second copy of des (1-3) IGF- I gene was inserted into pExSec1/IGF- I expression vector constructed by our previous work and carried already one des (1-3) IGF- I gene, to form PExSec1/2 (IGF- I ) expression plasmid, which carried two copies of tandem des (1-3) IGF- I gene. This plasmid was transformed into a protease deficient *E. coli* strain BL21 (DE<sub>3</sub>). The engineered bacteria was

cultured and induced at low temperature. The expressed product was purified through ultra-filtration and gel-filtration. The bio-activity of partially purified protein was tested by MTT method and compared with standard IGF- I .

**RESULTS:** The amount of des (1-3) IGF- I expressed by pExSec1/2 (IGF- I ) reached up to 19%-22% of the total soluble bacterial protein, which is about 7% higher than that of des (1-3) IGF- I expressed by pExSec1/IGF- I . The purity of recombinant des (1-3) IGF- I reached 49% and 82% respectively after the treatments by ultra filtration and gel-filtration. The result of MTT assay showed that the bio-activity of des (1-3) IGF- I after gel-filtration was about 77% of that of standard IGF- I at the same concentration.

**CONCLUSION:** The yield of recombinant des (1-3) IGF- I was increased about 7% by construction of expression plasmid with two copies of des (1-3) IGF- I gene, compared with only one copy of gene, preliminarily purified des (1-3) IGF- I showed relatively high biological activity, which was about 77% of that of standard IGF- I .

**Key words:** Insulin-like growth factor I ; Gene expression; Ultrafiltration; Chromatography, gel

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Sun HY, Liu XH, Liang SW. Construction, expression and characterization of double-copy genes of truncated form of human insulin-like growth factor- I . *World J Gastroenterol* 2000; 6(Suppl 3): 117 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/117.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.117>

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## Diagnostic value of CagA IgG in the process to eradicate *Helicobacter pylori*

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### Abstract

**AIM:** To investigate the diagnostic value of CagA IgG in serum.

**METHODS:** Seventy three patients with peptic ulcer infected with *Hp* were eradicated by antibiotics therapy. At pretreatment, wk 9 and wk 20 after treatment, the detection of *Hp* in gastric mucosa by bacteriologic method were performed, and CagA and whole-cell antigen of *Hp* IgG in serum by ELISA method were also performed at the same time.

**RESULTS:** The IgG titres of *Hp* CagA and whole-cell antigen changes in accordance with the efficacy of *Hp* eradicated. The former with an earlier appearance and a greater number of cases decreased to normal level in comparison with the latter.

**CONCLUSION:** CagA IgG is a better index for observing the effectiveness of the eradication of *Hp*.

**Key words:** *Helicobacter pylori*; Antibiotics; Gastric mucosa; Serodiagnosis; CagA; IgG

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Yang ZB, Wang PL, Gu MM, Chen LH, Chen Q, Zhan L. Diagnostic value of CagA IgG in the process to eradicate *Helicobacter pylori*. *World J Gastroenterology* 2000; 6(Suppl 3): 118 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/118.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.118>

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## Relationship of traditional Chinese medicine and *Helicobacter pylori* infection, expression of oncogene and tumor suppresser genes in patients with gastric cancer and precancerous lesions

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### Abstract

**AIM:** To study the relationship among typing of Traditional Chinese Medicine (TCM) and *Helicobacter pylori* infection, expression of oncogene and tumor suppresser genes in gastric cancer and precancerous lesions.

**METHODS:** According to TCM typing, 120 patients with chronic superficial gastritis, intestinal metaplasia, atypical hyperplasia and gastric cancer were divided into 4 groups: 21 patients with coexistence of cold and heat syndrome (group R), 22 patients with

in coordination between the liver and the spleen (group U), 29 patients with deficiency of the spleen-yin (group I) and 48 patients with insufficiency of the spleen yang (group H). Protein expression of c-myc, p21 and p53 were detected immunohistochemically, and *Hp* were confirmed by modified Giemsa method.

**RESULTS:** The *Hp* infection of the group H was significantly higher (72.9%) than that of group R (38.1%,  $p < 0.01$ ) and group U (40.9%,  $p < 0.01$ ). Expression of c-myc, p21 and p53 were significantly related to *Hp* infection and severity of gastric mucosa lesions (group H > group I > group U > group R).

**CONCLUSION:** *Hp* infection, expression of oncogene and tumor suppresser genes were related to TCM typing. These parameters were helpful in identification of symptoms and signs and TCM differentiation diagnosis.

**Key words:** *Helicobacter pylori*; Helicobacter infection; stomach neoplasms; Genes, suppressor, Tumor; Oncogenes; Precancerous conditions; Medicine, Chinese traditional

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Zhang WD, Wang XH, Zeng JZ, Zhang YL, Sun Y. Relationship of traditional Chinese medicine and *Helicobacter pylori* infection, expression of oncogene and tumor suppresser genes in patients with gastric cancer and precancerous lesions. *World J Gastroenterol* 2000; 6(Suppl 3): 119 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/119.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.119>

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## Clinical and experimental research on weile jiaonang for peptic ulcer

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### Abstract

**AIM:** To observe the therapeutic effect of weile jiaonang (WLJN) for peptic ulcer (PU) and its toxicity to animals, and to find out the nontoxic Chinese medicines in replacing those chemical medicines with side effect.

**METHODS:** Five hundred and forty patients with PU were divided into three groups, therapeutic group by WLJN, control group taking famotidine and combined group with WLJN and famotidine. One hundred and eighty patients in each group were studied. The diagnosis of 540 patients with PU is in accordance with the basis

provided by the National Scientific Congress of Digestive System Disease convened in Hangzhou, 1978. The study followed the criterion provided by this Congress.

**RESULTS:** Total effective rate in therapeutic group was 93.3%, and 93.3% in control group. Combined group achieved a total effective rate of 100%. For all three groups, there was no significant difference statistically, but the control group appeared obvious side effects. The result of acute toxic experiments on white mice showed that there no death and toxic side effect even the highest dosage was given, which was equivalent to 120 times to the dosage of patients. The result of chronic toxic experiment showed there was no obvious pathologic change in three dosed groups. The tails of mice in dosed groups were more smooth delicate and cleaner than those in control group.

**CONCLUSION:** Through observation in clinic and experimental animal, it is proved that weile jiaonang is particularly effective and safe Chinese patent drug against PU.

**Key words:** Peptic ulcer/diagnosis; Peptic ulcer/therapy

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Wu B, Huang PF, Liu CL, Li WH. Clinical and experimental research on weile jiaonang for peptic ulcer. *World J Gastroenterology* 2000; 6(Suppl 3): 120 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/120.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.120>

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## Inhibitory effect of antisense oligodeoxynucleotides complementary to HBV on HepG2.2.15 cell line

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### Abstract

**AIM:** To explore the therapeutic potential of antisense oligodeoxynucleotides on hepatocellular carcinoma (HCC).

**METHODS:** Four antisense phosphorothioated oligodeoxynucleotides (asON), complementary to different sites of HBV, were synthesized and assayed for their anti-HBV activity in HepG2.2.15 cells with ELISA. The most effective asON was chosen for the following study: FACSCAN, TRAP and immuno-staining were used respectively for

checking apoptosis, telomerase activity and expression of oncogene  $p21^{ras}$  and  $p62^{C-myc}$  in HepG2.2.15 cells after treated by asON.

**RESULTS:** The oligomer directed against the initiator of pre-S2 was the most effective one with an inhibitory rate of 66% on HBsAg and 91% on HBeAg ( $p < 0.02$ ). Two inhibitory peaks (bimodal) appeared. Telomerase activity as well as the expression of  $p21^{ras}$  and  $p62^{C-myc}$  decreased drastically 3 d after as ON-HbpreS-2 treatment. Meanwhile, apoptosis appeared in the experiments.

**CONCLUSION:** The inhibitory effects of as-preS<sub>2</sub> on the HBV gene expression and the reversion of some malignant behaviour in HepG2.2.15 cells were the significant, effective therapy against HBV infection and hepatocellular carcinoma.

**Key words:** Liver neoplasms; Hepatitis B virus; Oligonucleotides, antisense; Transfection; Apoptosis; Flow cytometry; Gene expression; Gene therapy

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Ma CH, Sun WS, Zhang LN, Ding PF. Inhibitory effect of antisense oligodeoxynucleotides complementary to HBV on HepG2.2.15 cell line. *World J Gastroenterology* 2000; 6(Suppl 3): 121 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/121.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.121>

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## Effects of heat exposure on the membranous structure of rat's intestinal epithelium and the biochemical indexes

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### Abstract

**AIM:** To study the effects of heat exposure and swimming on membranous structure of the small intestinal epithelium and the biochemical indexes.

**METHODS:** The distribution of the intra membranous particles (IMPs) in enteric epithelium of SD rats and the number of IMPs were analyzed with freeze-etching technique and TxB<sub>2</sub>, PGF<sub>1α</sub>, PRL, CORT and total SA (TSA) were measured with the techniques of biochemistry and radio immunity.

**RESULTS:** Heat exposure markedly affected the distributive pattern of IMPs in intestinal epithelium and made the numbers of IMPs on the PF and EF faces of cell membrane and nuclear membrane

decreased. Swimming exacerbated the above changes. And in the meantime heat exposure resulted in the massive releasing of the body-hurting substance as TxB<sub>2</sub> and reducing of the body-protecting substance as PGF<sub>1α</sub>. TSA increased obviously. These changes recovered partly after heat exposure, but the number of IMPs on both PF and EF faces and certain biochemical indexes were still not restored to the levels as in the control group.

**CONCLUSION:** Heat exposure and swimming can make the cellular catabolism accelerated and anabolism reduced, then bring about the numbers of IMPs of intestinal epithelium membrane and nuclear membrane decreased, and the distribution was abnormal. TxB<sub>2</sub>, PGF<sub>1α</sub>, PRL, CORT and TSA were changed abnormally during heat exposure. And above indexes showed no notable evidence of recovery after stopping heat exposure 4-24 h; the delayed injury was obviously presented.

**Key words:** Heat exposure; Intestine, small; Epithelium; Cell membranes; Freeze etching; Radioimmunoassay; Biochemical indexes

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Zhu GB, Li JH. Effects of heat exposure on the membranous structure of rat's intestinal epithelium and the biochemical indexes. *World J Gastroenterology* 2000; 6(Suppl 3): 122 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/122.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.122>

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## Hepatic content of collagens and laminin in rat model of experimental liver fibrosis

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### Abstract

**AIM:** The hepatic content of collagens (type I, III and VII) and laminin (LN) in rat model of experimental liver fibrosis was observed to find out their roles in the pathogenesis of liver fibrosis.

**METHODS:** The experimental rat model was established by immunological injury induced by injecting human albumin. Histopathological and immunohistochemical methods were used to

measure the hepatic content of collagens and laminin in the fibrotic rat livers.

**RESULTS:** The hepatic contents of collagens (type I, III, VII) and LN in the fibrotic rat livers were significantly increased as compared with those in the control group, and they were found to be mainly localized in the portal space, central veins and fibrous septa. Electron microscopic study showed that pro-collagens were present around the "activated" hepatic stellate cells (HSC) and the hepatocytes atrophied.

**CONCLUSION:** Pathological deposition of collagens (type I, III and VII) and laminin was the fundamental lesion of liver fibrosis. HSC may be the major cellular source of collagens (type I, III and VII) and laminin in the liver tissue.

**Key words:** Liver cirrhosis; Collagen; Laminin; Immunohistochemistry; Rats; Microscopy, electron

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Wang YD, Jia LW, Li CM. Hepatic content of collagens and laminin in rat model of experimental liver fibrosis. *World J Gastroenterology* 2000; 6(Suppl 3): 123  
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## Trends of surgical treatment of hilar bile duct cancer: clinical and experimental perspectives

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### Abstract

**AIM:** To summarize the experience of surgical treatment of hilar cholangiocarcinoma and the results of a series of experiments.

**METHODS AND RESULTS:** Personal perspectives of surgical treatment of hilar cholangiocarcinoma were based on the experience of a series of patients with hilar bile duct cancer treated in the General Hospital of PLA, Beijing from 1986 to 1999. A total of 157 cases were treated surgically, with 106 (67.5%) resections of the tumor, 37.6% of the resections was proved to be radical. The 1-, 2-, 3-, and 5-year survival rate of the radical resection group was

96.7%, 40.0%, 23.3% and 13.3%, respectively. No patient of the palliative re section group lived beyond 3 year postoperatively. The recent trends of surgical management of hilar bile duct cancer were discussed. Experiments were carried out for cooperative clinico pathological study to evaluate the perineural space involvement, the neural cell adhesion molecule expression, *p16* gene expression, and the 3-dimensional reconstruction of the bile duct cancer specimens. The pathogenetic relationship of HBV and HCV with extrahepatic cholangiocarcinoma was evaluated by histochemical and IS-PCR methods. And an inquiry into the possibility of gene therapy was made.

**CONCLUSION:** Hilar bile duct cancer rarely runs a "benign" course. It is a regional disease rather than a local affection and may be related to HBV and HCV infection in China. It possesses the metastasing ability along the perineural space by a "jumping" fashion, therefore, in most cases, conventional surgical excision is bound to be unradical in the region of the porta hepatis for anatomical reasons.

**Key words:** Bile duct neoplasms/surgery; Gene expression; Hepatitis B viruses; Hepatitis C viruses; Polymerase chain reaction; Gene therapy

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Huang ZQ, Zhou NX, Wang DD, Lu JG, Chen MY. Trends of surgical treatment of hilar bile duct cancer: clinical and experimental perspectives. *World J Gastroenterology* 2000; 6(Suppl 3): 124 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/124.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.124>

E- Editor: Hu S



## Survey on the pollution of drinking water in Cixian area with the highest incidence rate of esophageal cancer

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### Abstract

**AIM:** To understand the pollution status of drinking water in Cixian area and to find out a way to solve it.

**METHODS:** Contents of nitrate nitrogen, nitrite nitrogen and ammonia nitrogen were measured and compared with controls and

national standards.

**RESULTS:** Levels of nitrate nitrogen, nitrite nitrogen and ammonia nitrogen were higher than the national permissive levels by 20.60%, 50.50% and 33.30% respectively. Also the levels in Cixian are significantly higher than those of a controls areas of Chicheng - a county with very low incidence rate of esophageal cancer.

**CONCLUSION:** Three nitrogen levels in drinking water correlate both with the amount of N-containing fertilizer used in these areas and the mortality rates of esophageal cancer.

**Key words:** Esophageal neoplasms/etiology; Esophageal neoplasms/prevention and control; Incidence rates; Drinking; Nitrogen; Water pollution

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Zhang XL, Liang SY, Li XD, Li SS, Qiao CY, Li HG. Survey on the pollution of drinking water in Cixian area with the highest incidence rate of esophageal cancer. *World J Gastroenterol* 2000; 6(Suppl 3): 125 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/125.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.125>

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## Effect of Chinese herbal mixture, shock decoction on bacterial translocation from the gut

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### Abstract

**AIM:** To provide the TCM therapeutic basis for MODS in clinical critical patients, the role of shock decoction in anti bacterial translocation from the gut was tested in rats.

**METHODS:** Based on the pathophysiology of MODS following bacterial translocation from the gut caused by severe injuries such as burn, shock, hemorrhagic shock model that induced obvious bacterial translocation was established and used to determine whether shock decoction, that is composed of modified Wenpi Decoction, reduces

bacterial translocation. Bacterial culture for mesenteric lymph nodes, liver and spleen of rats in shock, treatment and control groups was used to calculate the incidence of bacterial translocation.

**RESULTS:** The incidence of intestinal bacteria translocating to mesenteric lymph nodes, liver and spleen was lower in the shocked rats infused *via* gastrogavage with shock decoction (3/15) than that in the non-infused shocked rats (11/13), ( $P = 0.0009$ ,  $< 0.01$ ). The incidence of intestinal bacteria translocation of rats in shock and control groups were distinctly different ( $P = 0.0017$ ,  $< 0.01$ ). The amounts and species of intestinal flora between infused and noninfused shocked rats were not different statistically ( $P = 0.101$ ,  $P > 0.05$ ). Histological examination showed that intestinal mucosa edema was severer in the shocked rats than in the shocked rats with gastrogavage.

**CONCLUSION:** Shock beverage could inhibit the shock induced enterogenous bacterial translocation in rats probably by its protective role in intestinal mucosa structure; and has no effect on the growth of intestinal bacteria.

**Key words:** Critical illness; Enterobactin; Gut origin sepsis; Multiple organ dysfunction syndrome (MODS); Multiple organ failure; Anti-bacterial translocation from the gut; Shock; Chinese herb

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Zhang P, Yang WM, Shui WX, Du YG, Jin GY. Effect of Chinese herb mixture, shock decoction on bacterial translocation from the gut. *World J Gastroenterology* 2000; 6(Suppl 3): 126 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/126.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.126>

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## Importance of hepatitis C as a risk factor for hepatocellular carcinoma in Guangxi

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### Abstract

**AIM:** To examine hepatitis C in hepatocellular carcinoma in most endemic area, Guangxi, China.

**METHODS:** Immunohistochemistry was performed on formalin fixed, paraffin embedded tissue sections. A total 202 specimens were analysed from the high, intermediate and low HCC prevalent regions

of Guangxi.

**RESULTS:** The distribution of positive hepatitis C cases from high, intermediate and low regions was respectively 24/63 (38%), 23/62 (37%) and 30/77 (39%), with a total of 77/202 (38.12%).

**CONCLUSION:** Hepatitis C virus is an important risk factor in the development of hepatocellular carcinoma, but the regional difference in prevalence of this cancer is more likely influenced by hepatitis B viral infection and aflatoxin B1 exposure. In Guangxi, infection of hepatitis B and C virus in the development of hepatocellular carcinoma may be greatly enhanced by exposure to aflatoxin.

**Key words:** Hepatitis C; Hepatoma; Risk factor; Immunohistochemistry; Gene, *p53*; Antibodies, monoclonal; Mutation

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Deng ZL, Ma Y, Yuan L, Teng PK. Importance of hepatitis C as a risk factor for hepatocellular carcinoma in Guangxi. *World J Gastroenterology* 2000; 6(Suppl 3): 127 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/127.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.127>

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## Expression of two CD44 variant proteins (v3 and v6) in human colorectal carcinoma and its relevance for prognosis

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### Abstract

**AIM:** To evaluate the expression of CD44v3 and v6 protein in colorectal carcinoma and its prognostic significance.

**METHODS:** One hundred and twenty-one cases of formalin-fixed paraffin-embedded colorectal carcinoma specimens were retrospectively analyzed using Envision-TM immunohistochemical method with the monoclonal antibody CD44v3 and v6. The median follow up time was 67.77 mo and the prognostic value of the CD44v3 and CD44v6 was assessed using univariate and multivariate survival analysis.

**RESULTS:** The positive rates of CD44v3 and v6 protein were

60.3% and 57.9%, respectively. There was significant correlation between CD44v3 immunoreactivity and tumor location, lymph node metastasis, distant metastasis and Duke's stage ( $P < 0.05$ , Spearman correlation test). Significant correlation between CD44v6 immunoreactivity and patients' gender, lymph node metastasis, distant metastasis, Duke's stage was also noticed ( $P < 0.05$ , Spearman correlation test). The 5-year survival rates were 81.25% and 60.27% in CD44v3 negative and positive cases, respectively. As CD44v6, the 5-year survival rates were 80.39% and 60.00% in CD44v6 negative and positive cases, respectively; these differences between the two groups of patients were significant ( $P < 0.05$ , Log-rank test). In multivariate analysis using the Cox regression model, CD44v3 expression emerges as an independent prognostic indicator.

**CONCLUSION:** CD44v3 and v6 might play some important roles in metastasis of colorectal carcinoma, and CD44v3 expression might be a new useful independent prognostic marker of colorectal carcinoma.

**Key words:** Colorectal neoplasms; CD44v3; CD44v6; Metastasis; Prognosis; Immunohistochemistry

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Cai Q, Lu HF, Sun MH, Du X, Fan YZ, Shi DR. Expression of two CD44 variant proteins (v3 and v6) in human colorectal carcinoma and its relevance for prognosis. *World J Gastroenterol* 2000; 6(Suppl 3): 128 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/128.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.128>

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## BCG vaccine combined with dipyridamole in the treatment of HBV infection

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### Abstract

**AIM:** To investigate the effect of BCG vaccine and dipyridamole in treating hepatitis B due to their anti virus effects.

**METHODS:** Among 602 patients with positive HBeAg, 512 were allocated to the treatment group and 90 patients to the control group. There was no significant difference in disease and age between the two groups. All the patients in the treatment group with no abnormal findings by chest X-ray fluoroscopy, whose local skin scleromata diameters were less than 7 mm after the 1:2000 OT test, were given BCG vaccine 0.1 mL intracutaneously at the deltoid once a month, and simultaneously took dipyridamole 50 mg twice a day for four to eight months. The hepatic function, B-mode ultrasound and the five markers of hepatitis B were routinely examined before

each injection. The results at one month after the last injection in the treatment group were compared with those of the control group.

**RESULTS:** The recovery rates of hepatic functions and the rates of improvement of the symptoms and signs in the treatment group were better than those in the control group. The negative transformation rates of HBeAg and the positive transformation rates of HBeAb were 60.3% and 31.6% in the treatment group vs 13.3% and 13.0% in the control group ( $P < 0.01$ , Test  $\chi^2$ ,  $\chi^2 = 26.82, 6.81$ ). The negative transformation rates of HBsAg and the positive transformation rates of HBsAb were 5.5% and 8.2% in the treatment group vs 5.6% and 9.9% in the control group ( $P > 0.05$ , Test  $\chi^2$ ,  $\chi^2 = 1.11, 0.22$ ).

**CONCLUSION:** The application of BCG vaccine in combination with dipyridamole increased the negative transformation rate of HBeAg and the positive transformation rate of HBeAb, improved the clinical symptoms, signs and hepatic function of the patients. These two drugs had significant anti-HBV effect and showed good efficacy in the treatment of HBV infection.

**Key words:** Hepatitis B virus/therapy; BCG vaccine; Dipyridamole; Antiviral agents

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Gao XW, Jia SY, Liu XM. BCG vaccine combined with dipyridamole in the treatment of HBV infection. *World J Gastroenterology* 2000; 6(Suppl 3): 129  
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## Clinical and experimental study on treatment of retention enema for chronic non-specific ulcerative colitis with quick-acting kuijie powder

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### Abstract

**AIM:** To study the clinical effect and mechanism of retention enema with quick acting Kuijie powder (QAKJP) in treating chronic non-specific ulcerative colitis (CUC).

**METHODS:** A treatment group of 156 patients treated with QAKJP

and a control group of 78 patients treated with sulfasalazine orally were established randomly and their scores of main symptoms and signs were measured and compared before and after treatment. Animal experiments were conducted at the same time.

**RESULTS:** The total effective rate in the treatment and control group was 98.7% and 70.5% respectively, the clinical cure rate was 78.2% and 6.4% and the recurrence rate 5.3% and 20.0% respectively. The effectiveness of the treatment group was markedly superior to that of the control group,  $P < 0.01$ . Experimental study showed QAKJP could rapidly alleviate the congestion and edema of intestinal mucosa, promote the healing of ulcer, inhibit spasm of colon and had significant antidiarrheal action and antagonistic effect against allergic mediator histamine.

**CONCLUSION:** Retention enema with QAKJP has good effect on CUC, with low recurrence rate and no toxic or side effect.

**Key words:** Colitis, ulcerative/therapy; Enema; Quick-acting kuijiesan

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## Clinical study on the D<sub>4</sub> lymph nodes excision in advanced gastric cancer

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### Abstract

**AIM:** To study the safety and the traumatic degree of D<sub>4</sub> approach by retrospective analysis of the para-operative data from the para-aortic lymph nodes excision in comparison with those from standard radical resection in advanced gastric cancer (AGC).

**METHODS:** Several para-operative data including the resectability, the mortality, the complicated morbidity, the amount of transfused blood, and the hospitalized days relating to the operation were analyzed statistically between D<sub>4</sub> ( $n = 30$ ) and D<sub>2</sub> lymph nodes

excision ( $n = 34$ ) groups. The data expressed as means  $\pm$  SD was analyzed statistically by Student's  $t$  test. Percentage of the data was analyzed by  $\chi^2$  test statistically. It was taken as significant difference if  $P$  value was less than 0.05.

**RESULTS:** The percentage of palliated resection in D<sub>4</sub> group was significantly lower than that in D<sub>2</sub> group (16.67% vs 47.06%,  $P < 0.05$ ). This D<sub>4</sub> radical resection would indeed prolong the drainage time ( $7.35 \pm 0.98$  d vs  $14.78 \pm 2.16$  d,  $P < 0.01$ ). The amount of transfused blood during operation ( $774.32 \pm 112.09$  mL) and the operative consuming time in D<sub>4</sub> group ( $7.14 \pm 0.39$  h) increased significantly too compared with those in D<sub>2</sub> group ( $538.67 \pm 59.87$  mL,  $P < 0.05$ ;  $4.12 \pm 0.18$  h,  $P < 0.05$ ), suggesting that the dramatic degree of D<sub>4</sub> operation was severer than that of D<sub>2</sub> operation. But the mortality, the morbidity of complication and the hospitalized time after D<sub>4</sub> operation did not increase significantly, indicating that D<sub>4</sub> lymph nodes excision as a choice of the surgical treatment of AGC was safe and feasible.

**CONCLUSION:** D<sub>4</sub> lymph nodes excision for AGC is safe, reasonable and feasible.

**Key words:** Stomach neoplasms/surgery; Lymph nodes excision; Complications

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Jiang BJ, Wang HQ, Sun RX, Gao XF, Shen H. Clinical study on the D<sub>4</sub> lymph nodes excision in advanced gastric cancer. *World J Gastroenterology* 2000; 6(Suppl 3): 131 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v3/iSuppl3/131.htm> DOI: <http://dx.doi.org/10.3748/wjg.v3.iSuppl3.131>

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## Clinical and pathological study on the hyperbaric oxygenation treatment of chronic hepatitis

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### Abstract

**AIM:** To study the effect and alteration of hepatic blood flow as well as ultrastructure of hepatic tissue in chronic cholestatic hepatitis after hyperbaric oxygenation (HBO).

**METHODS:** Using the hepatic rheometer and Doppler B-mode

ultrasound equipment, the contractive wave of hepatic blood flow and blood flow of portal vein were tested; the biochemistry, immunohistochemistry and ultrastructure of hepatic tissue were determined and served as the evaluating indexes.

**RESULTS:** After the HBO treatment, the contractive wave of hepatic blood-flow in 76% patients and blood of right portal vein in 70% patients were increased, the improvement of serum ALT and BILI was 88.9% and 93.3% respectively. In addition, the swelling mitochondria, cholestasis of hepatic cells and capillaries reduced obviously; Kupffer's cells decreased. There was significant difference ( $t = 2.85$ ,  $P < 0.05$ ) before and after HBO treatment.

**CONCLUSION:** It is suggested that the HBO could increase the blood flow of portal vein and arteries, improve the hepatic function, cholestasis and inflammation.

**Key words:** Hyperbaric oxygenation; Hepatitis liver; Ultrastructure

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## Role and prognostic significance of p53 mutation in colorectal carcinomas

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### Abstract

**AIM:** To study the prognostic significance of the *p53* cDNA mutation and mutant p53 protein in colorectal adenocarcinomas.

**METHODS:** *p53* cDNA mutation was detected with RT-PCR-SSCP, and mutant p53 protein overexpression was detected by PAb 240 monoclonal antibody in 100 cases of colorectal adenocarcinomas. The follow up survey of all patients were done within the five years after operation, and comparing with *p53* cDNA mutation and mutant p53 protein overexpression for the prognostic significance of colorectal adenocarcinomas. The data is treated with SPSS computer program, Kaplan Meier Survival Plots were calculated and analyzed by Log-rank analysis.

**RESULTS:** Fifty-one cases of *p53* cDNA mutations (51%) were found with RT-PCR-SSCP and 76 cases of mutant p53 protein

overexpression (76%) found with PAb 240 monoclonal antibody immunohistochemistry staining in 100 cases of colorectal adenocarcinomas. There are no relationship with Dukes stage in the statistics in *p53* cDNA mutation (mutation: Dukes A 9%, B 10%, C 20%, D 12%; No mutation: A 13%, B 12%, C 12%, D 12%) and mutant p53 protein overexpression (positive: Dukes A 17%, B 6%, C 27%, D 16%; negative: A 5%, B 6%, C 5%, D 8%) ( $P < 0.05$ ). Moreover, the data show *p53* cDNA mutation is associated with mutant p53 protein overexpression (both positive 49%, single positive 29%, both negative 22%) ( $P < 0.01$ ), *p53* cDNA mutation can provide prognostic information (*p53* cDNA mutation positive: alive 35, dead 16; negative: alive 42, dead 7) ( $P < 0.05$ ), and mutant p53 protein overexpression is ambiguous and does not assess prognosis (p53 protein overexpression positive: alive 58, dead 18; negative: alive 19, dead 5) ( $P = 0.72$ ) with Kaplan Meier Survival Plots and Log-rank analysis.

**CONCLUSION:** *p53* cDNA mutation is associated with mutant p53 protein overexpression (*p53* cDNA mutation and mutant p53 protein overexpression both positive 49%, single positive 29%, both negative 22%) ( $P < 0.01$ ) and *p53* cDNA mutation can provide poor prognostic information, and is the biomarker of poor survival of colon cancer. However, mutant p53 protein overexpression could not predict prognosis and may be effected by other multi-factors in colon cancer.

**Key words:** Colorectal neoplasm; Genes, *p53*; Gene expression; Polymerase chain reaction; Mutation; Immunohistochemistry

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Ji CY, Smith DR, Goh HS. Role and prognostic significance of p53 mutation in colorectal carcinomas. *World J Gastroenterol* 2000; 6(Suppl3): 133 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/133.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.133>

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## Experimental study and clinical application of retrograde liberated highly selective vagotomy for the treatment of duodenal ulcer

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### Abstract

**AIM:** We introduce a new highly selective vagotomy (HSV) procedure which can completely destroy any existing variant vagal fibers innervating the proximal stomach.

**METHODS:** Twenty eight dogs were divided into three groups: group A had retrograde liberated highly selective vagotomy (RLHSV), group B had traditional HSV and group C as control group. Gastric acid secretion function was tested and gastric parasympathetic and sympathetic enervation were studied by retrograde tracing the horseradish peroxidase (HRP) or by histochemical staining. After being convinced that the modified procedure was an easier and more effective HSV on animal model, we applied the technique to the treatment of duodenal ulcers in 100 patients.

**RESULTS:** Significant decrease of acid secretion was found in operated dogs in both group A and B. After injection of HRP subserously into the fundus and body, no HRP positive cells were found in the vagal dorsal nucleus in group A and B but were in group C. When HRP was injected into the antrum, HRP stained cells were found in dorsal nucleus in all three groups. The negative histochemical staining of AchE and the positive fluorescence in the fundus and body in group A and B indicate that parasympathetic nerve fibers were destroyed completely while norepinephrinergic nerve fibers were intact. When the operation was applied to patients, no severe complications or operative mortality occurred. Patients were followed up for 6-84 mo. They all had complete gastric emptying function. Ninety four patients were graded as Visick I or II. Six as Visick III and IV. Eighty patients had been followed up with gastroscopy for two years after operation. Four patients had recurrent ulcers. Among them two patients were asymptomatic and the other two had symptoms and were treated with partial gastrectomy.

**CONCLUSION:** Compared to the classic HSV, our modified procedure is more effective clinically and convenient technically.

**Key words:** Vagotomy, Proximal gastric; Duodenal ulcer/therapy; Horseradish peroxidase; Gastroscopy; Follow-up studies

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## Regulation of decoction shugan bushen on testosterone and adrenocorticotropin in rats with hepatic fibrosis

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### Abstract

**AIM:** To observe the regulating effect of decoction shugan bushen (SGBS) on testosterone (Te) and adrenocorticotropin (ACTH).

**METHODS:** Fifty wistar male rats divided into four groups randomly, that is, normal group, hepatic fibrosis group, and two Chinese herb medicine treatment groups. The model of toxic hepatic fibrosis was induced by 0.5% dimethylnitrosamine (DMN). The decoction SGBS is composed of such herbs as bupleurum Root, Dodder Seed, curcuma rood indianmulberry *etc.* According to the different doses of the drugs, rats are divided into two groups in the treatment groups. The Chinese herb medicine treatment begins in a week after the second celiac injection of DMN, lasting 8 wk. The rats of normal group and hepatic fibrosis group are fed with distilled water once a day. After

11 wk of Chinese herb medicine treatment, the Te and ACTH were tested in rats, and the livers were dissected for the pathology examination.

**RESULTS:** The results of pathology examination in rat livers of each group show that the hepatocytes of the normal group have normal array, no degeneration and fibrosis. Those in the pathology group have obvious degenerative necrosis and hepatic fibrosis, and in some cases show the evidence of cirrosis. The results in treatment groups are essentially similar to those of normal group. Variance analysis of least significant difference (LSD) method is employed to compare the hormone level between groups. The serum levels of Te and ACTH in the normal group are  $75.30 \pm 45.25$  ng/dL and  $141.02 \pm 68.70$  ng/L. The levels in hepatic fibrosis group are obviously lower than those of normal group, as  $19.77 \pm 16.92$  ng/dL and  $92.85 \pm 27.24$  ng/L, respectively and with statistically different ( $P < 0.01$ ). But that levels in the two treatment groups are respectively  $63.29 \pm 26.09$  ng/dL  $135.48 \pm 36.89$  ng/L and  $59.77 \pm 4.64$  ng/dL,  $130.8 \pm 17.35$  ng/L, which are obviously higher than those of pathology group and approxi male to those of normal group ( $P > 0.05$ ). Two different doses make no obvious difference between the treatment groups ( $P > 0.05$ ).

**CONCLUSION:** SGBS can correct the hormone disturbance and shows the effect of anti-hepatic fibrosis.

**Key words:** Liver cirrhosis; Shugan bushen; Testolactone; Adrenocorticotropic hormone dimethylnitrosamine; Rats

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Fan ZP, Wu JC, Zhu X, Wan QH, Li TZ. Regulation of decoction shugan bushen on testosterone and adrenocorticotropin in rats with hepatic fibrosis. *World J Gastroenterol* 2000; 6(Suppl3): 135 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/135.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.135>

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## Development of somatostatin and bombesin-secreting cells of proventriculus from Shao ducks

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### Abstract

**AIM:** To study the development of D (somatostatin secreting) and P (bombesin secreting) cells of proventriculus from Shao ducks at different ages.

**METHODS:** Ninety Shao ducks were divided into nine groups, 10 ducks per group. The ducks were slayed group by group at the nine time points of week 0 (after hatching), 1, 2, 4, 6, 10, 14, 18 and 22. Proventriculus samples from each duck were collected, fixed by Bouin solution and embedded with paraffin. Sections were made and stained with an avidin-biotin peroxidase complex kit (Dako Co. Ltd.)

to visualize D and P cells of each proventriculus. Thirty glandular lobes per duck were observed for enumeration of D and P cells.

**RESULTS:** (1) Both D and P cells were mostly oval or polygonal shape with dumpy cytoplasmic processes and located in the inner and central area of the glandular lobe. (2) The D and P cells peaked at week 18 and 6 respectively. And (3) there was no apparent correlation between D cells and the body weight until week 4. Negative correlation was observed from week 6 and reached a marked level at 18 wk ( $r = -0.829$ ,  $P < 0.05$ ). Individuals with maximum body weight had less D cells than those with minimum body weight from 10-18 wk.

**CONCLUSION:** The morphology and distribution of D and P cells in the roventriculus of Shao ducks were similar to Peking ducks, geese and chickens. Both D and P cells had continuing development during the postnatal period, though the rates of their development were different. It appeared that beyond a definite number of D cells, they were negatively correlated with the body weight.

**Key words:** Somatostatin; Caerulein; Immunohistochemistry; D cells; P cells; Ducks

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## The epidemiologic feature of HCV prevalence in Fujian

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### Abstract

**AIM:** To investigate the epidemiological features of HCV prevalence, a seroep-idemiologica survey on HCV infection has been carried out in Fujian since 1992.

**METHODS:** Using stratified multistage random cluster sampling, 3809 serum samples collected from 1237 families in the diseases

surveillance points were tested by UBI HCV EIA kit.

**RESULTS:** The results showed that the prevalence rate was 3.99%. The rate in male and female was 3.63% and 4.25%, and in urban and rural 3.12% and 4.6% respectively ( $P > 0.05$ ). There was lower rate in children aged under 10 years. The highest rate was in 20-24 years old. The rates in different areas were ranged from 1.39% to 6.08% ( $P < 0.05$ ). The intrafamilial transmission was not important, indicating no intrafamilial aggregation. The superinfection of HCV with HAV, HBV and HEV were existed. The HCV infection was slightly correlated with the history of hepatitis and transfusion.

**CONCLUSION:** It suggests that the HCV transmission among the population in Fujian is mainly sporadic infection.

**Key words:** Hepatitis C virus/epidemiology; Seroepidemiologic methods; Incidence; Superinfection; Hepatitis C; Hepatitis A virus; Hepatitis B virus; Hepatitis E virus

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Li LF, Zhou Y, Xia S, Zhao LL, Wang ZX, Wang CQ. The epidemiologic feature of HCV prevalence in Fujian. *World J Gastroenterol* 2000; 6(Suppl3): 137  
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## Clinical significance of abdominal right lower paramedian incision in rectal cancer operation

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### Abstract

**AIM:** The incision in rectal cancer operation is adopted commonly in the left mid lower abdomen. But there are some defects for the incision, which is close to the artificial colotomy, readily be contaminated by feces, difficult to treat the lesions in hepatic and cholecystic area at the same time and in the weakened area of abdominal wall. So, we employed the abdominal right lower paramedian incision to solve these problems.

**METHODS:** The abdominal right lower paramedian incision is from pubic tubercle upward to 3-4 cm above navel. The incision should be extended upward if individual need of performing hepatic and

cholecystic operation, or placing catheter or pump in hepatic artery or portal vein for chemotherapy at the same time.

**RESULTS:** One hundred and eighty three cases with rectal cancer were adopted this incision in different operation procedure, and out of them 41 patients were taken different operation on hepatic and cholecystic lesions and place a catheter or pump to hepatic artery or portal vein. Operators feel that the incision dose not hinder exploring and operating in all of the patients.

**CONCLUSION:** The right lower paramedian incision of abdomen is far away from the artificial colotomy, and it can reduce the feces contamination, lower down the rate of incision hernia and paramedian hernia or fistula. Furthermore, it is easy to treat the complicated hepatic and cholecystic lesion. So, authors suggest that this incision is useful for the operation of rectal cancer, and it is worth to populize in clinical practice.

**Key words:** Rectal neoplasms/surgery; Incision; Abdominal paramedian incision; Surgery, operative

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Wang CS, Wei SJ, Li JD. Clinical significance of abdominal right lower paramedian incision in rectal cancer operation. *World J Gastroenterol* 2000; 6(Suppl3): 138 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/138.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.138>

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## Three-year follow-up study on hepatic fibrosis due to chronic hepatitis B treated by interferon- $\alpha$ 1b and traditional medicine preparation

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### Abstract

**AIM:** To investigate the short-term and long-term therapeutic effect of traditional medicine preparation and IFN- $\alpha$ 1b on hepatic fibrosis due to chronic hepatitis B.

**METHODS:** Fifty-two patients with hepatic fibrosis of hepatitis B

were treated by IFN- $\alpha$ 1b and traditional medicine preparation, then observed the change of serum indexes of hepatic fibrosis, liver biopsy, ultrasonography and fibergastroscopy.

**RESULTS:** The serum indexes of hepatic fibrosis decreased significantly after 3-mo treatment ( $P < 0.05$ ). The improvement of liver fibrosis was confirmed by liver biopsy, ultrasonography and fibergastroscopy. After 3-year continuous follow-up, the conditions of patients were got better. Symptoms and signs were disappeared. The pathohistologic change of liver, serum index of hepatic fibrosis and liver function were continuously improved.

**CONCLUSION:** The good short-term and long-term effects were obtained by using IFN- $\alpha$ 1b to suppress duplication of hepatitis B virus and traditional medicine preparation to reverse hepatic fibrosis.

**Key words:** Hepatitis B; Liver cirrhosis/drug therapy; Interferon-alpha; Drugs, Chinese herbal; Biopsy; Ultrasonography; Follow-up studies

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Cheng ML, Lu YY, Wu J, Luo TY, Huang KF, Ding YS, Liu RC, Li J, Li Z. Three-year follow-up study on hepatic fibrosis due to chronic hepatitis B treated by interferon- $\alpha$ 1b and traditional medicine preparation. *World J Gastroenterol* 2000; 6(Suppl3): 139 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/139.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.139>

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## Microinjection of limonene into caudate nucleus inhibits interdigestive myoelectrical complexes of rats

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### Abstract

**AIM:** We have discovered that Limonene modulates interdigestive myoelectrical complexes (IMCs) of gastrointestinal tract in rats. In this research we will elucidate whether limonene affects acetylcholine M-receptor in caudate nucleus.

**METHODS:** Changes of IMCs were studied after limonene and/or atropine were microinjected into caudate nucleus. IMCs were recorded by a RM-6200 four-channel recorder and then delivered to Maclab and Power Macintosh.

**RESULTS:** The active phases of IMCs occupied about 40% of total cycle in average. After microinjection of limonene into caudate nucleus, the active phases were significantly shortened, while the cycle time of IMCs were not changed significantly. The inhibitory effects of limonene were abolished by pretreatment with atropine, whilst the atropine has no effect on IMCs.

**CONCLUSION:** It is suggested that limonene inhabits the gastrointestinal IMCs by affecting M-receptor in caudate nucleus.

**Key words:** Limonene; Interdigestive myoelectrical complexes; Caudate nucleus; Rat

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Guo H, Zhu XY, Wei YQ, Yang DZ. Microinjection of limonene into caudate nucleus inhibits interdigestive myoelectrical complexes of rats. *World J Gastroenterol* 2000; 6(Suppl3): 140 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/140.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.140>

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## Effect of herbs-partition moxibustion on IL-1 $\beta$ and TNF- $\alpha$ in UC rats

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### Abstract

**AIM:** To observe the effect of herbs-partition moxibustion on IL-1 $\beta$  and TNF- $\alpha$  in UC rats.

**METHODS:** The animal models were created by immunological method. They were divided into 5 groups at random, after treated by different methods, IL-1 $\beta$  and TNF- $\alpha$  in colon tissue of UC rats were detected with immunologic technique.

**RESULTS:** In control group, there was a little or no IL-1 $\beta$  positive cell in colon mucosa. Compared with that in rats of control group, the number of IL-1 positive cell in model group was much larger, and IL-1 $\beta$  cells with brown granules were mainly expressed in cytoplasm of macrophage in lamina propria of colon. Compared with model group, IL-1 $\beta$  positive cells in mild moxibustion group markedly

decreased ( $P < 0.05$ ), and those in electro acupuncture group and herbs partition moxibustion group decreased even more markedly ( $P < 0.01$ ). The difference between the last two groups is evident ( $P < 0.05$ ). TNF- $\alpha$  positive cells are not or seldomly found in UC rats, but in model group, these cells increased evidently, which were mainly the macrophages in lamina propria of colon. Compared with those in model group, the positive cells decreased markedly in electro acupuncture group ( $P < 0.05$ ), and decreased more markedly in mild moxibustion group and in herbs-partition moxibustion group ( $P < 0.01$ ). There were statistically significant differences between herbs-partition moxibustion group and electro acupuncture group ( $P < 0.05$ ).

**CONCLUSION:** The mechanism of acupuncture and moxibustion may be that inhibited macrophage activation, reduced expression of IL-1 $\beta$  and TNF- $\alpha$  and thereby blocking their further activation and then controlled, the initiated inflammation and its immunity cascade reaction and resulted in restoring the normal immunity function and benefited in healing of ulcer.

**Key words:** Ulcerative colitis; Interleukin-1; Immunohistochemistry; Acupuncture-moxibustion; Macrophage-activating factors; Tumor necrosis factor; Rats

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Tan WL, Wang YH, Zhang P, Zhang LS. Effect of herbs-partition moxibustion on IL-1 $\beta$  and TNF- $\alpha$  in UC rats. *World J Gastroenterol* 2000; 6(Suppl3): 141  
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## Construction and expression of a fusion protein consisting anti-HBsAg antibody fragment Fab and interferon-a in *E. coli*

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### Abstract

**AIM:** To construct an expression vector for anti-HBsAg antibody Fab fragment and interferon-aA (IFN-aA) fusion protein in *E. coli*.

**METHODS:** With PCR and molecular clone techniques, we amplified the gene fragment of IFN-aA with corresponding endonuclease sites

and artificial linker at 5', 3' termini, and then formed pHS/IFN-aA by recombining it within the vector in correct endonuclease sites, choosing the positive clone to transform into *E. coli* and introduced by IPTG to express the fusion protein.

**RESULTS:** Enzymic hydrolysis and DNA sequence measurement confirmed that human gene of IFN-aA was correctly cloned to the vector and could express fusion protein in *E. coli*.

**CONCLUSION:** The success in construction and expression of a fusion protein makes it possible to carry out further studies on its purification and targeted polypeptide therapy to HB virus.

**Key words:** Interferon-alpha; Immunoglobulin fragments; Viral fusion proteins; Hepatitis B virus; Polymerase chain reaction; *Escherichia coli*

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Zheng W, Tan H, Song SB, Lu HY, Wang Y, Yu YX, Yin R. Construction and expression of a fusion protein consisting anti-HBsAg antibody fragment Fab and interferon-a in *E. coli*. *World J Gastroenterol* 2000; 6(Suppl3): 142 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/142.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.142>

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## Therapeutic effect of Jinhuang Pingan Decoction on intestinal adhesion

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### Abstract

**AIM:** To observe the clinical effect of self-made Jinhuang Pingan Decoction (JHPAD) in treating intestinal adhesion.

**METHODS:** Among 580 cases of intestinal adhesion, 492 cases were treated with oral JHPAD alone; 88 cases with incomplete intestinal obstruction were treated by gastrointestinal decompression, then giving concentrated JHPAD through the GI tube as well as fluid

replacement and anti inflammation therapy.

**RESULTS:** Among 580 cases, 302 cases were cured, 232 cases, improved and 46 cases had no change, the total effective rate was 92.1%. In 492 patients treated with JHPAD alone, 264 cases had obvious effect, 202 cases were improved and 26 cases had no effect, the total effective rate was 94.7%, and the corresponding results in 88 cases treated with JHPAD and gastrointestinal decompression were 39 cases, 29 cases, 20 cases and 77.3% respectively. In addition, there was close relationship between the therapeutic efficacy and disease course, and had significant statistical difference in therapeutic efficacy with the disease course of less than 30 d or over 12 mo ( $\chi^2 = 87.32, P < 0.0001$ ).

**CONCLUSION:** JHPAD has the effect of clearing heat, detoxication, anti-inflammation, relieving edema, analgesia, hemostasis and anti adhesion in the treatment of intestinal adhesion. It has a satisfactory efficacy and no toxic reaction, so it is worthy to popularize in clinical practice.

**Key words:** Intestines; Adhesions/therapy; Jinhuang pingan decoction; Anti-inflammatory agents saline solution, hypertonic

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## Inhibitory effect and mechanism of acarbose combined with gymnemic acid on maltose absorption in rat intestine

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### Abstract

**AIM:** The control of diet regimen and nutrient intake, aiming to avoid the exaggerated levels of glucose and anabolic hormone is broadly accepted as basic treatment of diabetes mellitus. Maltose is an important hydrolysate of starch, main source of nutrition. Acarbose is an alpha-D-glucosidase inhibitor but with a short inhibitory duration. Gymnemic acid (GA), a group of triterpene glucuronides, inhibits glucose absorption with a longer effective duration but it needs a longer time to achieve its maximum effect. To determine whether nutrient control in diabetic care can be improved by combination of them, we compared the combinative and individual effect of acarbose

and GA on maltose absorption and hydrolysis in small intestine.

**METHODS:** The absorption and hydrolysis of maltose were studied by re-cyclic perfusion of intestinal loops *in situ* and motility of the intestine was recorded with the intestinal loop *in vitro*, of Wistar rat.

**RESULTS:** The total inhibitory rate of maltose absorption was improved by the combination of GA (0.1-1.0 mg/mL) and acarbose (0.1-2.0 mmol/L) throughout their effective duration ( $P < 0.05$ , *U* test of Mann-Whitney), although the improvement only could be seen in the low dosages during the first hour. With the combination, inhibitory duration of acarbose on maltose absorption was prolonged to 3 h and the onset of GA inhibitory effect was fastened to 15 min. GA suppressed the intestinal motility with a good correlation ( $r = 0.98$ ) to the inhibitory effect of GA on maltose absorption and the inhibitory effect of 2 mmol/L (higher dose) acarbose on maltose hydrolysis was dual modulated by 1 mg/mL GA *in vivo* indicating that the combined effects involved the functional alteration of intestinal barriers.

**CONCLUSION:** There are augmented effects of acarbose and GA, which involve pre-cellular and paracellular barriers. Furthermore, diabetic care can be improved by employing this combination.

**Key words:** Diabetes mellitus; Maltose, gymnemic acid; Alpha-glucosidases; Intestinal mucosa; Nutrition

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## Therapeutic effect of carbonate buffer mixture on gastrointestinal atony in cattle

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### Abstract

**AIM:** To substantiate the therapeutic effects of carbonate buffer mixture on naturally occurring gastrointestinal atony in cattle.

**METHODS:** Therapeutic effects of carbonate buffer mixture ( $\text{Na}_2\text{CO}_3$

50 g,  $\text{NaHCO}_3$  420 g, KCl 20 g, NaCl 100 g, water 10 L) were observed in 120 cases of gastrointestinal atony including forestomach atony, rumen impaction, rumen acidosis, omasum impaction and intestinal constipation. Judgement of curative effects as cure: after treated, the cases become clinically normal in general conditions, appetite, rumination, ruminal peristalsis and defecation; uncure: after giving two doses, the gastro-intestinal atony has not been eliminated.

**RESULTS:** Average cure rate of carbonate buffer mixture on above mentioned diseases were 95%, and average dose was  $1.4 \pm 0.5$ .

**CONCLUSION:** Being a new approach for treatment of gastrointestinal atony in ruminants, the carbonate buffer mixture can eliminate the gastrointestinal atony originated from the over acidity in gastrointestinal canal.

**Key words:** Carbonate buffer mixture; Gastrointestinal atony; Therapeutics; Cattle

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## Gene expression profiles in liver cancer and normal liver tissues

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### Abstract

**AIM:** To describe a liver cancer = specific gene expression profile and to identify genes that showed altered expression between liver cancer tissues and their adjacent nearly normal tissues.

**METHODS:** The cDNA probes which were labeled with  $\alpha$ -<sup>32</sup>P dATP were synthesized from total RNA of liver cancer and adjacent normal tissues and hybridized separately to two identical Atlas human cancer cDNA expression array membranes containing 588 known genes.

**RESULTS:** Autoradiographic results were analyzed by specific Atlas Image TM (version 1.0) software. Among the 588 genes analyzed, 18 genes were found up-regulated in cancer, including *TFDP2*, *Akt1*, *E2F-3* etc, and 25 genes were down-regulated in cancer, including *TDGF1*, *BAK*, *LAR*, etc. Expression levels of genes that associated with the regulation of cell proliferation, apoptosis, differentiation, cell-cell interaction, invasion regulators and cytokines altered mostly.

**CONCLUSION:** The result obtained from Atlas microarray provides a comprehensive liver cancer specific expression profile. The results can lead to the identification of liver cancer-specific biomarkers and may be helpful in early diagnosis and identification of target genes for designing rational therapeutic strategies.

**Key words:** Liver neoplasms/diagnosis; Gene expression; Differential hybridization; Microarray

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Liu LX, Jiang HC, Zhu AL, Zhou J, Wang XQ, Wu M. Gene expression profiles in liver cancer and normal liver tissues. *World J Gastroenterol* 2000; 6(Suppl3): 146 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/146.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.146>

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## Study of inhibit the proliferation and induce apoptosis of human colon adenocarcinoma cell line HCT<sup>116</sup>

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### Abstract

**AIM:** To explore the anti tumor effect of indomethacin (IN) on human colon adenocarcinoma cells and determine the influence of indomethacin on cancer cell proliferation and apoptosis and elucidate the anti-tumor mechanism of Indomethacin.

**METHODS:** Human colon adenocarcinoma HCT116 cell line were cultured separately *in vitro*. Indomethacin (final concentration 100-800  $\mu$ m) was administered alone or altogether with 5-Fu (50  $\mu$ m). Agarose gel electrophoresis, MTT, and Flow cytometry were used to study cell proliferation and apoptosis in human colon carcinoma cell RT-PCR, western blot were used to detect the

expression level of *Bcl-2*, *bax* gene and cdk4 protein expression in HCT116 cell lines after treated with IN for 24 h.

**RESULTS:** Indomethacin can inhibit significantly the proliferation of HCT116 cell, change the morphology, and cause the cells to accumulate in the G0/G1 phase of the cell cycle, and induce apoptosis. The apoptosis of tumor cells was confirmed by DNA ladder formation on gel electrophoresis and sub-G1 peak on flow cytometry. These responses were time-and concentration dependent. A synergic effect of inhibiting cancer cell proliferation was observed when combined with Indomethacin and 5-Fu. RT-PCR results showed that IN down-regulated *Bcl-2* mRNA expression, and did not change *Bax* mRNA expression. Western blot results confirmed that IN inhibited *Bcl-2* protein expression. No influence was found in the translation of *Bax* protein. IN inhibited cdk4 protein expression.

**CONCLUSION:** Our study results indicate that IN induce apoptosis of HCT116 cell by down-regulating *Bcl-2* expression and inhibiting cdk4 protein expression partially. This explains the mechanisms of antitumor activity of the Indomethacin.

**Key words:** Colonic neoplasms; Indomethacin; Apoptosis; Flow cytometry; Polgmerase chain reaction

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## Effects of colloidal bismuth tartrate on colitis induced by immune-complex in rabbits

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### Abstract

**AIM:** To observe the therapeutic effect of colloidal bismuth tartrate in an animal colitis model.

**METHODS:** Immune-complex colitis was induced in groups of rabbits by formalin, and two hours later 0.85 mL heat aggregated rabbit IgG was given intravenously through the ear cannula. Animals were intracolonicallly treated with colloidal bismuth tartrate (BITNAL), and its effect was compared with sulfasalazine (SASP), indomethacin (IND) and bifidobiogen (BIFG). Animals were killed, the mucosal appearance was scored (0-4), and tissue saved for histological studies, the number of neutrophils present in inflamed colonic tissue was quantitated by the myeloperoxidase (MPO) activity assay, the

production of lipoxygenase and cyclo-oxygenase products was monitored and eicosanoid production were assayed by incubation colonic specimens and the media for prostaglandin E2 (PGE2), leukotriene (LTB4), thromboxane B2 (TXB2) were examined by radiomunoassay.

**RESULTS:** Immune complex colitis was induced by formalin and IgG, colonic damage persisted for at least 1 wk by macrography. Histologically, the inflammatory response included mucosal and submucosal infiltration by polymorphonuclear leukocytes, macrophages, lymphocytes and fibroblasts, the macroscopic, percent 2 wk after IgG, was correlated with greatly increased PGE2, LTB4 and TXB2 compared with levels in controls. Treatment with BITNAL (500 mg/kg) resulted in a lowered inflammation index, lowered MPO activity and inhibited the increased formation of PGE2, LTB4 and TXB2 by the inflamed colon, and IND (500 mg/kg) markedly inhibited prostanoid formation in both inflamed and control colon but did not reduce tissue damage, SASP (500 mg/kg) also inhibited the formation of PGE2, LTB4 and TXB2 but the effects were less marked. BIFG (400 mg/kg) did not significantly reduce the colonic injury and the media synthesized by the rabbit colon.

**CONCLUSION:** BITAL provides better therapeutic effects in experimental colitis than anti-inflammatory drug IND or SASP.

**Key words:** Colitis/therapy; Bitnal; Rabbits; Models; Formaldehyde; Immunoglobulins

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## Surgical treatment for patients with stage IVa hepatic carcinoma and related studies

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### Abstract

**AIM:** To clarify the surgical strategy for patients with stage IVa primary hepatic carcinoma (PHC).

**METHODS:** Twenty-seven patients with stage IVa PHC were retrospectively studied in 1989-1998, including resected group (19 cases) whose all tumor nodes were resected and cytoreductive group (8 cases) whose most tumor nodules were resected and remnant nodules treated by ethanol injection. B-ultrasound should be used intraoperation in order to prevent from missing any tumor nodule.

All the tumor nodules in the liver should be removed, and residual nodules should be treated by ethanol injection during operation if all the tumor nodules can not be removed. Multidisciplinary therapies were undertaken perioperatively.

**RESULTS:** The 1, 2 and 3-year survival rates were 71.4%, 55.6% and 7.7% respectively. The 1, 2 and 3-year survival rates of the resected and cytoreductive groups were 73.3%, 53.3%, 10.0% and 66.7%, 50.0%, 0% ( $P > 0.05$ ) respectively. The rate of complications was 22.0%, without operative and in-hospital mortality.

**CONCLUSION:** The surgical treatment included resected or cytoreductive operation plus supplementary therapy considered to be both useful and the first choose for stage IVa PHC.

**Key words:** Primary hepatic carcinoma; Operation; Cytoreductive surgery; Survival rate

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## Assessment of the clinical value of CK-M<sub>2</sub> and oligosaccharide protein in serum from patients with gastric carcinoma

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### Abstract

**AIM:** To evaluate the clinical value of creatine kinase macro isoenzyme type 2 (CK-M<sub>2</sub>) and oligosaccharide protein (OP) in serum from patients with gastric carcinoma (GC).

**METHODS:** Serum level of CK-M<sub>2</sub> was detected by agar gel

electrophoresis. OP concentration was measured by an enzyme immunoassay.

**RESULTS:** Serum levels of CK-M<sub>2</sub> and OP in 57 cases of GC were significantly higher than those in 51 cases with gastric precancerous lesion and 28 controls. The diagnostic sensitivity and specificity for GC with CK-M<sub>2</sub> was 56.10% and 98.63% respectively. CK-M<sub>2</sub> and OP were not associated with histologic type and degree of differentiation.

**CONCLUSION:** These results suggest that CK-M<sub>2</sub> may serve as a marker to diagnose GC, and the specificity is higher, whereas OP is not more significant for GC diagnosis, but it could be a useful indicator for evaluation the status of body immune.

**Key words:** Stomach neoplasms; Serodiagnosis; Oligosaccharides; Creatine kinase isoenzymes; Electrophoresis, Agar gel; Immunoenzyme techniques

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## Non-invasive endoprosthesis in treatment of biliary fistulas and pancreatic fistulas

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### Abstract

**AIM:** To search for a simple and safe method to avoid reoperation, reduce complications and mortality, shorten hospital stay and lower the medical cost.

**METHODS:** Based on the characteristic of pathology and anatomy of biliary fistula and pancreatic fistula, modified endoscopic nasobiliary drain age or endoscopic nasopancreatic drainage with negative

pressure were used to drain the bile and pancreatic juice to the duodenum and *in vitro* to facilitate fistulous tract close.

**RESULTS:** In seven patients with biliary fistulas with conservative treatment who were not yet recovered after 6-110 d, the leakage was blocked after 6-17 d treatment, and in 6 patients with pancreatic fistulas with conservative treatment who were not recovered after 90-720 d, the leakage was blocked after treatment for 12-28 d.

**CONCLUSION:** The advantages of this modified method are: retain the function of the Oddi sphincter; the anatomy of the pancreatic duct and bile duct and the position of fistulas can be seen clearly with contrast examination; the drainage effect was defieate, safe and with less complications; the leakage block can be promoted with the drainage of negative pressure; and hospital stay is shortened and medical cost is reduced.

**Key words:** Gallbladder diseases/therapy; Pancreatic fistula/therapy; modified endoscopic nasobiliary drainage; Endoscopic nasopancreatic drainage; Drainage; Endoprosthesis

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