SELECTED SUMMARIES

Fluorescein Dilaurate Tubeless Test for Exocrine Pancreatic Function

The clinical usefulness of a simple exocrine pancreatic function test has been assessed by the authors in 70 patients and 19 normal individuals. Fluorescein dilaurate is a colourless ester of fluorescein, which, when given orally, can be displaced by the pancreatic enzyme lipase to long-circuit fluorescein which is then absorbed and excreted in the urine. Fluorescein is a harmless, colourless dye which becomes orange-green and fluoresces at nm. The test consists of oral administration of 0.5 mmol of fluorescein dilaurate after standard breakfast which acted as a physiological stimulus to the pancreatic secretion. Urine was collected for 10 hours. The following day 0.5 mmol of unsterilised fluorescein was given under the same conditions. The urinary excretion of fluorescein after oral fluorescein dilaurate was expressed as a percentage of the excretion which occurs after the same dose of unsterilised dye. This percentage has been called “Pancreatic Index” and should be independent of other variables such as intestinal absorption or renal excretion.

Four groups were studied which consisted of:

- Group I: 19 normals
- Group II: 24 patients with exocrine pancreatic insufficiency documented by steatorrhoea
- Group III: 7 patients with morphological criteria. No steatorrhoea
- Group IV: 18 patients with steatorrhoea of non-pancreatic origin

The urinary excretion of fluorescein was measured spectrophotometrically. The sensitivity of the test was 95%. The false positive rate was 11% in patients, who had steatorrhoea of non-pancreatic origin.

The authors claim that it is an easy and acceptable test which can be used as a screening test for pancreatic exocrine insufficiency.

Comments

Pancreatic insufficiency is difficult to diagnose and the diagnosis of chronic pancreatitis is a continuing problem. Most of the available procedures are difficult, time consuming and require a specialized set up. Hence, simpler, inexpensive, non-invasive oral (tubular) pancreatic function tests are being devised over the past few years. These tests have the advantage of avoiding duodenal intubation which is the main cause of failure for both direct and indirect stimulation tests. These tests depend on the increased pancreatic enzyme secretion within the duodenum as the pathophysiologic mechanism for detection of pancreatic disease.

Such a test has been described in this article using fluorescein dilaurate, a synthetic ester. The advantages are that it is easy to perform, acceptable, needs a simple lab setup and can be performed in the outpatient clinic. The authors claim that the reproducibility is better than the other tubular tests. The disadvantages are also obvious. The false positive rate in non-pancreatic steatorrhoea is high. 11% had a false positive test and 22% had borderline pancreatic indices. The role of this test in assessing the severity of the insufficiency is doubtful. In 15 patients the test was correlated with the Lund test in this study and no correlation was found. Patients with cholestatic jaundice may pose a problem in the urinary estimation of the dye, although a significant advantage is that this test is minimally altered by any form of therapy.

The other oral pancreatic function test described is that using a synthetic tripeptide N-(benzoyl)-L-tyrosyl P amnioserinid acid (benzyloxytyrosyl PABA) which has been extensively studied. (Diagnosis 1981; 21: 133, Br J Surg 1981; 68: 775.) The advantages are similar and the drug is expensive at present. The analysis of fluorescein is simpler and quicker than PABA.

The dual labelled Schilling test reported by Brugg et al (Gastroenterology 1980; 79:337) is a sensitive test and may become popular, though it also has the disadvantage of a long urinary collection and low isotope recovery. Another new test, the two stage trilium breath test to differentiate pancreatic insufficiency from other causes of malabsorption has been described by J. S. Goff (Gastroenterology 1982; 83:43) and lacks specificity for distinguishing between the two conditions. The advantages of this test is that it is the only test that most of these tests do not become abnormal until severe pancreatic insufficiency is present. Until tests which measure the entire range of pancreatic function rather than picking up end stage disease are developed, these tests can be used only as screening tests for exocrine pancreatic failure. They may also be useful in epidemiological surveys and to monitor patient's progress.

Trifluridine

V BALAKRISHNAN

Which Surgical Procedure for Pancreatic and Perianpillary Carcinoma


All the patients in this retrospective review underwent some form of surgical procedure: palliative bypass in 111 (55.5%), surgical resection in 53 (26.5%) and laparotomy and biopsy only in 38 patients (19%). The median survival was 3 months in the “Bypass Only” group, 6 months in the bypass group and 12 months in the resection group.

Operative mortality was lowest in the resection group (14%), while it was 22% in the bypass group and 37% in the “Bypass Only” group. A higher % of patients required reoperation of only biliary bypass was performed without prophylactic gastroduodenal bypass. 38 patients underwent pancreatoduodenectomy (Whipple’s procedure) while 16 had total pancreatectomy. 20 of these 55 patients had adenocarcinoma of the pancreas while the remaining patients had other perianpillary carcinomas. These patients had a significantly longer survival. 7 of the 14 patients discharged after total pancreatectomy required reoperation for management of diabetes. Multicentricity was seen in 35% of patients with pancreatic carcinoma, who underwent total pancreatectomy. More complex lymphadenectomy and uniform necrosis of cut margins were possible with total pancreatectomy.

Based on the results, the authors suggest a practical approach to the operative management of these patients. If metastasis is evident, surgery should not be undertaken and neoplastic disease must be performed. In those with no evidence of metastasis, a diligent search for spread to the lymph nodes and adjacent structures should be made at the time of operation. In the event of metastasis to these structures, bile and gastricoduodenal bypass should be done irrespective of the gastrointestinal involvement. In patients with localized disease and good general condition, a resection can be performed. Perianpillary surgery other than pancreatic cancer should be performed by Whipple’s resection. In young and intelligent patients with localized pancreatic cancer a total pancreatectomy may be performed, though there is no evidence to suggest that this procedure increases the survival significantly.

Comments

Cancer of the pancreas is highly lethal and the incidence seems to be increasing (UICC Technical Report Series, Geneva, 1981; 57: 9-13). Gastriculson et al., in a review of 64 reported series encompassing 15,000 patients found an absolute survival rate of 0.4%, which was minimally altered by any form of therapy (Cancer 1978; 42: 2694).
The present review is based on one of the largest series dealing with many aspects of this dreadful disease. It is unfortunate that 3 patients with ileal involvement of the duodenum, saccus of the head of pancreas and islet cell tumour have been included in a study bearing the heading of carcinoma of pancreas. Most of the recommendations are in line with those already published. For example, it has already been recommended that gastrectomy should preferably be done along with Billroth I or II (Ann Surg 1970; 127: 762). However, certain differences from previous studies had been observed. Diabetes after total pancreatectomy is often quoted to be not severe (Arch Surg 1975; 101: 2061), while it was not so in 50% of patients in the present series. Also the asymptomatic pancreatic tests were not a problem in this series. There was also no difference in survival after total pancreatectomy while some studies showed prolonged survival (Ann Surg 1978; 189: 129, Mayo Clin Proc 1981; 56: 468). It is worthy of note that a comparison is made between the last two surgical procedures of resection in the same hospital and that the two groups were well matched. However, to make real good comparison and draw meaningful conclusions, a large scale, randomised study of patients with resectable lesion of the head of pancreas is needed. Till such time, the surgical procedure of choice will largely depend on the individual preferences of the operating surgeon. The aggressive investigative and surgical approach together with adjuvant chemotheraphy and radiotherapy may hopefully, in the future, change the dismal scene prevailing in this field.

Bombay
V SANTHI SWAROOP

ANOTHER POSSIBLE CLINICAL USE OF SERUM BILE ACID DETERMINATION


In the present study the authors have measured by radioimmunoassay serum cholic acid and chenodeoxycholic acid (CDCA) conjugates during fasting and after meals in 14 patients with bile acid malabsorption secondary to ileal resection. Five patients with colectomy for ulcerative colitis and 10 healthy subjects were also studied for control purposes.

In all the patients, bile acid malabsorption had been previously demonstrated by breath analysis and faecal excretion of 1H4C after oral administration of cholestyramine C. The patients had normal liver function tests and normally functioning gallbladders. The ratio of serum cholic and chenyl conjugates as well as the ratio of glycine and taurine conjugates of cholic and chenodeoxycholic acid in serum were evaluated in each of them during fasting and after meals.

In healthy subjects, in the fasting state, CDCA was the predominant bile acid in serum. Its peak was higher and was reached within 90 minutes after the meal compared with serum cholesterol acid in which the peak rise occurred about 120 minutes after the meals and it was not so sharp and high as that of CDCA. In patients with bile acid malabsorption, mean fasting levels of cholesterol and CDCA did not differ from controls. Postprandially however, rise in cholic acid levels was lower than in controls (p<0.001) and sometimes even absent. Chenodeoxycholic acid postprandial levels did not differ significantly from controls. In the colectomized patients serum fasting levels of cholic and chenodeoxycholic acid were similar to controls. Maximum rise in cholic acid after food were not significantly different in them from those in healthy subjects, while maximal rise in CDCA after meals was lower (p<0.01) compared with controls. The ratios of CDCA/cholic acid remained unaltered in healthy subjects and cholesterol-fed patients, while it increased in patients with ileal resection due to a relative serum enrichment of CDCA in them. In the sera from patients with ileal resection, the glycine/glycerile/taurine ratio for cholic and CDCA increased (p<0.001) from morning to evening and glycine/glycerile/taurine ratio for CDCA was significantly (p<0.01) different from the controls in the sera collected in the evening.

The results of this study are consistent with the concept of a better intestinal conservation of cholic, mainly of the glycine conjugated form, than of chenyl conjugates. The postprandial peaks of serum cholic acid conjugates may therefore be regarded as a test of ileal dysfunction, while peaks of CDCA conjugates suggest colonic impairment.

Comments

The authors' contention that postprandial serum bile acid levels give information about the presence of malabsorption is based on the belief that because of selective intestinal absorption two different enterotrophic pathways exist for triglyceride and dihydroxy bile acids. The ratio of cholic and chenyl conjugates did not significantly change in the controls throughout the day while in patients with ileal resection a significant increase of glycine conjugates as compared with chenyl conjugates was observed suggesting malabsorption. Secondly, cholic acid postprandial peaks may be a marker of ileal disease, while those of CDCA about colonic impairment. Earlier studies however, are not in total agreement with these observations and further trials are needed to obtain confidence in clinicians with regard to the clinical relevance of these serum bile acid estimations during malabsorption studies.

New Delhi
SHIV K SARIN
RAKESH K TANDON

LETTER TO EDITOR

Vitamin C therapy: Lack of effect in fulminant hepatic failure

Dear Sir,

Knodell et al recently reported on the lack of effect of vitamin C prophylaxis for post transfusion hepatitis. We had undertaken a prospective randomised controlled trial of vitamin C therapy in fulminant hepatitis. 20 cases of fulminant hepatitis in grade 3 and 4 coma were prospectively randomised into 2 groups with vitamin C or placebo, respectively. The patients received 6 g/day of vitamin C intravenously in three divided doses. Both groups received standard supportive anticoagulant measures including Neomycin. The vitamin C group also received hydrocortisone 100 mg 6 hourly (i.v.) for the first 48 hours. Five of the eleven (45%) of the control group and three of nine (33%) of the treated group survived. The difference was not significant. Neither was there any significant difference in the duration of survival. We believe that vitamin C combined with a short course of hydrocortisone does not improve the survival in patients with fulminant hepatic failure.

A KOSHY, V NANDA, G SINGH

Department of Hepatology, Postgraduate Institute of Medical Education and Research, Chandigarh, India—160 012.

References