

Gastroenterological Society of Australia

Methaemalbumin in pancreatic and other diseases

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(Brisbane)

Plasma methaemalbumin levels were measured in four groups of patients: (1) a control group admitted for elective surgery for a variety of conditions; (2) a group with abdominal pain not due to pancreatitis; (3) a group with gastrointestinal haemorrhage or with major tissue trauma; (4) a group with pancreatitis. Levels in the sera of control patients in group 1 were similar to those in group 2. Some patients in group 3 had raised levels, particularly those with major haemorrhage into the tissues. High levels of methaemalbumin were found in some patients in group 4 and one of these died with haemorrhagic pancreatitis.

The effect of diet on bile volume and total bile salt secretion in rhesus monkeys

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(London, UK)

An experimental model, designed to allow controlled interruption of the enterohepatic circulation of bile salts, has been used to study the effect of various dietary regimes on bile volumes and total bile salt secretion in rhesus monkeys. A body pool of bile salts (0.48-1.32 m moles) circulates from 5 to 15 times each day to maintain a secretion rate of 4.74-10.03 m moles per 24 hours. Diurnal variation occurs in both bile volume and bile salt secretion rates. A diet high in calories and fat increases bile volume and bile salt secretion ($P < 0.01$) when compared to a low calorie and fat diet. Unsaturated fats have a greater stimulant effect than saturated fats or calorie increase alone. Medium chain triglycerides may also increase bile volume and total bile salt secretion.

Reticuloendothelial phagocytic function in human liver diseases

W. G. E. COOKSLEY, L. W. POWELL, AND JUNE W. HALLIDAY (Brisbane)

Reticuloendothelial phagocytic capacity (REPC) was measured by the rate of plasma disappearance of radio-iodinated microaggregated human albumin after

intravenous injection. In 12 patients with acute hepatitis (alcoholic, active chronic hepatitis without cirrhosis, and viral hepatitis) REPC was significantly increased. REPC was decreased in patients with alcoholic cirrhosis, but not in patients with active chronic hepatitis, haemochromatosis, or cryptogenic cirrhosis. When all patients (29) with cirrhosis of the liver were considered, spleen size correlated significantly with REPC ($P < 0.01$). However, in patients with alcoholic cirrhosis the presence of splenomegaly was associated with decreased REPC ($P < 0.05$). This paradox is explained by the fact that in cryptogenic cirrhosis and active chronic hepatitis REPC is greater than in alcoholic cirrhosis and splenomegaly is present often to a great degree.

Premature development of intrinsic factor-mediated vitamin B₁₂ absorption in the infant rat

N. D. GALLAGHER AND K. E. FOLEY (Sydney)

Intrinsic factor-dependent absorption of vitamin B₁₂ in infant rats does not develop until the end of the third week, when intrinsic factor production by the stomach increases. When the absorption of 10 to 250 m μ g doses of ⁵⁷Co-vitamin B₁₂ in 12-day old rats was compared with that in litter mates which had received an injection of cortisone acetate, four days previously, it was found that a smaller percentage of the dose was absorbed in the cortisone-treated animals. Absorption in the latter group was similar to that in weaned animals which were fed equivalent doses of the vitamin. The earlier transition to intrinsic factor-dependent vitamin B₁₂ absorption occurred at a time when there was a sixfold increase in the intrinsic factor content of the stomach.

The effect of restraint stress on purine metabolism: A method of studying DNA synthesis in gastrointestinal mucosa

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(Adelaide)

The appearance of acute gastric ulceration in restrained animals is preceded by diminished incorporation of tritiated thymidine into deoxyribonucleic acid (DNA) and a reduction of DNA content of the mucosa. In the present study purine nucleotide precursor enzyme activity was assessed to determine whether there was a reduction in nucleic acid precursor formation. Eight guinea pigs restrained for 40 hours developed antral ulceration. A reduction of hypoxanthine and adenine phosphoribosyltransferase (PRTase) was observed in the antral mucosa of restrained animals ($P < 0.001$) while a less significant reduction in adenine PRTase activity was seen in fundic and jejunal mucosa ($P < 0.05$). The reduction in purine nucleotide

biosynthetic enzyme activity in the ulcerated area of the gastrointestinal tract of restrained animals suggests that measurement of these enzymes may be an index of the rate of nucleic acid synthesis.

Immunoglobulins and dietary protein antibodies in childhood coeliac disease

K. D. KENRICK AND J. A. WALKER-SMITH
(Sydney)

In 24 children with coeliac disease and in a control group of 17 children with a variety of gastroenterological disorders, serum immunoglobulins and dietary protein antibodies were measured. Elevated IgA and low IgM were demonstrated in one third of the coeliac patients and antibodies to at least one of eight dietary proteins were found in 50% of this group. Three children with elevated IgA and two with deficient IgM were re-examined after gluten restriction. Antibodies to dietary proteins waned and immunoglobulin levels returned to normal in all cases.

The selectivity of an anticholinergic drug on gastric secretion—a study of oxyphenyclimine hydrochloride

R. P. HERRMANN AND D. W. PIPER (Sydney)

Using stimulated saliva flow and human volunteers, equipotent doses (as regards effect on saliva flow) were determined for atropine and Daricon (oxyphenyclimine hydrochloride). The effect of these doses on hypoglycaemic gastric secretion and on near point visual accommodation was determined in seven volunteers. Doses of Daricon equipotent with atropine as regards saliva flow and near point accommodation had a statistically greater effect on gastric secretion. It is concluded that one at least of the newer proprietary anticholinergic drugs has a selective effect on the stomach.

Bile salt concentrations in chronic liver disease

G. M. MCLEOD (Hobart)

Five patients with established chronic liver disease, three alcoholics without cirrhosis (two of whom had chronic pancreatitis), three patients with terminal ileal disease or resection thereof, and eight normal subjects were fed a standard fatty meal. Duodenal juice was obtained by siphonage for the next two hours. Bile salt concentration was measured by enzymic hydrolysis with hydroxysteroid dehydrogenase in the presence of DPN. Tryptic activity was determined using BAEE as substrate. Mean bile salt concentrations ranged from < 1.0 to 3.4μ mol/ml in the

patients with liver disease; from 2.8 to 4.4 in patients with ileal disease; from 4.3 to 12.2 in the three alcoholics; and from 4.7 to 24.6 μ mol/ml in the normal subjects. Tryptic activities were normal in four patients with liver disease but very low in the fifth, who also had a pancreatic carcinoma. The bile salt concentrations found in the patients with liver disease are too low to expect normal fat absorption to take place and lower than those found in the patients with ileal disease, all of whom had steatorrhoea.

The peptide fraction of human gastric juice

D. W. PIPER, D. H. FENTON, M. L. KEMP, AND A. D. CLARKE (Sydney)

Gastric juice was collected following neutralization *in situ*. The large molecular fraction was removed by pressure ultra filtration and the small molecular fraction analysed by column chromatography. The peptide fraction so isolated was further analysed by high voltage electrophoresis. A large number of peptides were found in human gastric juice. There was no difference found when normal subjects and patients suffering from duodenal ulcer, gastric ulcer, gastric carcinoma, and pernicious anaemia were compared.

Tissue damage in haemochromatosis: an analysis of the roles of iron and alcoholism

L. W. POWELL (Brisbane)

The clinical and pathological details of 80 patients with haemochromatosis treated at two hospitals over the past 15 years were reviewed. Three patients were lost to follow-up. Of 44 who had received regular venesection therapy, 31 were well, while 13 were dead or severely incapacitated. Comparable figures for the 33 untreated patients were 10 well and 23 dead or incapacitated. Hepatoma developed in 11 patients, four in the treated group and seven in the untreated group. However, in only 24 patients was the excess iron completely removed and periodic venesections maintained. All the patients are still alive and no hepatoma has occurred in this group. In two with cirrhosis at the time of diagnosis a normal lobular pattern was found 15 years later. Half the patients consumed alcohol to excess and the survival rate and response to venesection therapy in this group were worse than in the non-alcoholic subjects.

Giant rugal hypertrophy of stomach with protein loss and response to drug therapy

H. J. V. ROBERTS (Brisbane)

A 49-year-old storeman presented with a three year history of gross oedema. There was no evidence of cardiac, renal, hepatic,

or neoplastic disease. Serum albumin was 2.3g%. Giant rugal hypertrophy of the stomach was confirmed by barium meal, gastroscopy and gastric biopsy. Penta-gastrin stimulation revealed a peak half hour acid output of 19 m-equiv. After labelling *in vivo* of albumin with $^{51}\text{CrCl}_3$ 16% of the dose of radioactivity was recovered in a 5-day stool collection (normal less than 1%). Although propantheline bromide in maximum tolerated dosage was added in an attempt to reduce protein loss from the stomach chronic chloride studies revealed that this was without effect.

Stool chromatography for sugar in children with diarrhoea

P. SOEPARTO, E. STOBO, AND J. A. WALKER-SMITH (Sydney)

A simple method for descending chromatography for sugar has been used to investigate the stools of children with diarrhoea. Homogenized stool is centrifuged and the supernatant spotted on Whatman no. 1 chromatography paper. Ethyl acetate, pyridine, and water are used as the solvent, alkaline silver nitrate as the locating agent, and sodium thio-sulphate and potassium metabisulphite as the fixative to keep a permanent record. One hundred and four stools were examined from 38 children with diarrhoea. Lactose, sucrose, and transient glucose malabsorption have been identified and the response to dietary therapy observed.

Gastric autoimmunity in pernicious anaemia

R. G. STRICKLAND, S. BAUR, L. A. E. ASHWORTH, AND K. B. TAYLOR (Stanford, California, USA)

Autoimmune phenomena in the stomach were contrasted with serological and gastric functional and structural findings in 20 patients with pernicious anaemia (PA). Frequency of parietal cell antibody (PCA) in serum was 85%, and 75% in gastric juice, intrinsic factor antibody (IFA) was present in serum of 50% and in gastric juice of 80% of patients. IgG parietal cell antibody occurred in 100% of positive sera and 60% of positive gastric juices. IgA PCA was detected in 25% of positive sera and in 80% of positive gastric juices. IgA type II IFA was found with equal frequency in serum and gastric juices and IgG type II IFA occurred in 85% of positive sera and 60% of positive gastric juices. Tissue PCA occurred in 65% and tissue IFA in 30% of patients. Atrophic gastritis (AG) was present in 15 patients and gastric atrophy (GA) in five. Parietal cell antibody could be detected in all three sites in both atrophic gastritis and gastric atrophy. IFA was absent in all three sites in GA and present in one or more sites in all patients

with AG. Severity of vitamin B₁₂ malabsorption or intrinsic factor deficiency did not correlate with the presence of or absence of IFA.

Protein digestion in intestinal nematode infections

L. E. A. SYMONS (Sydney)

In neither the rat infected with *Nippo-strongylus brasiliensis*, the mouse with *Nematospiroides dubius*, nor the sheep with *Trichostrongylus colubriformis* was there any evidence of derangements of digestion or absorption of ^{14}C -Chlorella protein. Nor was there any difference between the ability of rats or mice, whether infected or not, reared from weaning on diets of 21% or 9% to digest protein. There was a variable degree of jejunal villous atrophy and a marked fall in the level of mucosal leucine-aminopeptidase, maltase, and alkaline phosphatase in the infected rat. The villous atrophy was more marked in the infected sheep than in the rat.

Aspects of protein metabolism in intestinal nematode infections

L. E. A. SYMONS (Sydney)

A marked depression of the incorporation of ^{14}C -leucine into skeletal muscle protein was found in mice infected with *Nematospiroides dubius* and in guinea pigs infected with *Trichostrongylus colubriformis*. Conversely there was an elevation of incorporation into liver protein in both infections. When mice were fed a quantitatively inadequate diet so that they lost weight at the same rate as the infected animals there was a fall in the incorporation into muscle protein, but no change in incorporation into liver protein. The apparent half-life of protein was shorter in muscle and longer in the livers of infected mice. The faster disappearance of ^{75}Se -selenomethionine indicated that the catabolic rate was greater in the infected animals.

Experience with the Olympus fiberoptic oesophagoscope (model EF)

E. THOMAS, A. KERR GRANT, AND I. G. HISLOP (Adelaide)

This oesophagoscope gives excellent viewing of the gullet, cardio-oesophageal region, and the upper gastric areas. It is superior to fiberoptic gastroscopes in inspection of the fundic recess and of the upper lesser curve of the stomach; gastroenterostomy stomas and the adjacent jejunum can be seen well. In many instances almost total visualization of the stomach was obtained. The instrument is not suitable for surgical procedures on the gullet, and biopsy specimens suffer by being small.

Studies on serum gastrin levels in pernicious anaemia

M. G. KORMAN, D. J. B. ST. JOHN, AND J. HANSKY (Melbourne)

Fasting serum gastrin levels were measured by radioimmunoassay in 21 patients with pernicious anaemia and studies to assess the response to physiological inhibitors of gastrin release were performed in 15 of the patients. Serum gastrin levels were measured in five patients during infusion of 0.9% saline and 0.1N hydrochloric acid into the stomach, and in two patients during infusion of solutions of increasing acidity. The response to the intravenous injection of secretin was studied in eight patients. The mean fasting serum gastrin level (\pm SEM) for the 21 patients was $1,036 \pm 215$ pg/ml. Only one patient had a fasting level within the normal range (0-120 pg/ml). Infusion of hydrochloric acid into the stomach resulted in a mean fall of 40% in serum gastrin. Infusion with solutions of increasing acidity was increased from pH 6 to pH 4. Rapid intravenous injection of secretin produced a mean maximal fall of 44% in the serum gastrin levels, whereas slow infusion produced a mean maximal fall of 35%.

the Gastroenterological Society of Australia. Like the spring meeting in Great Britain, this was devoted to a special subject, on this occasion, the pancreas. Dr I. M. Marks, of Cape Town, as the 1970 Phillip Bushell lecturer, was the guest speaker on pancreatitis. The physiology and pathophysiology and diagnosis of pancreatic disorders were admirably covered by the contributions to this weekend meeting which was attended by 180 visitors. It was a vigorous, lively, informative meeting and held under ideal conditions. The Society was inaugurated in 1959 and has developed exceedingly rapidly and is now holding meetings twice a year. Gastroenterology in Australia began in the 1930s with the splendid pioneer work by Ian Wood and his colleagues in introducing the flexible gastric biopsy tube. This not only led to a clear understanding of the natural history and pathology of gastritis but opened up a vast new field of intestinal research. The Walter and Eliza Hall Institute in Melbourne, under the direction of Ian Wood, was the starting point not only for clinical and scientific gastroenterology but also for the practice of clinical research in Australia. Many of those who worked with him, such as Saint, King, Joske, and Mackay, later developed their own gastroenterological units around Australia. At the same time Dr A. W. Morrow and Dr S. Goulsion were building up another unit, which is now the Sir William Morrow Unit at the Royal Prince Alfred Hospital, Sydney, and its research activities made a great impact on world gastroenterology.

Today, each main hospital in Australia and New Zealand has a well developed gastroenterological service and everywhere there is a great interest and activity in clinical research, as indeed is evident from the report of the Proceedings of their Society published in this number. Not all centres could be visited, but among those seen the Sir William Morrow Unit at the Royal Prince Alfred Hospital, Sydney, stood out with the best-planned programme for postgraduate training and for its very lively and active research activity under the direction of Dr Mistilis. For a well-developed gastroenterological service in a busy general teaching hospital special credit is due to Dr Alan Kerr Grant for the attention to detail and to the efficiency of his Department at Queen Elizabeth Hospital, Adelaide. Gastroenterology in Australia is being very well backed up by fundamental research work going on in university pre-clinical and clinical departments. Professor Joske in Perth, a very active gastroenterologist himself, is particularly well supported by Professor N. J. Simmonds, Dr Morgan and Dr Hoffman in the Department of Physiology in the University of Western Australia, and the same applies to Dr

Fone and Dr Mackay at the Royal Melbourne Hospital, to Dr Luke Murphy at St Vincents Hospital and Dr Hansky and Dr Peter Parsons in relation to Monash University. Monash, a new university with delightful architectural appeal, had been catalysed into great activity by its medical dean, Professor Rod Andrew, a gastroenterologist with a special gift for administration. Other hospitals visited included the Royal North Shore Hospital, Sydney, where Dr D. Piper and Dr Nagy focus down on problems of peptic ulceration and are particularly well backed up by their radiological colleague, Dr John Hunt. At the Prince Henry Hospital, Dr B. Billington continues his interest in analgesic drugs in relation to ulceration, and at the Concord Hospital Dr Neil Gallagher, Secretary of the Gastroenterological Society of Australia, runs a very active department. The uninhibited and original approach to so many problems is equally to be found in other centres and adds up to a particularly stimulating experience for overseas visitors. Those who were particularly interested in liver diseases would be able to pinpoint many other workers and departments, including Professor Blackburn at the Royal Prince Alfred Hospital, Sydney, Dr Hecker at Adelaide, and Dr Powell at Brisbane. It was interesting to find how well gastroenterological services have been developed in the smaller hospitals, a particularly good example being the Department of Gastroenterology at Geelong, under Dr Andrew Newell.

Most medical visitors to this continent will find some special interest, apart from gastroenterology, in nature conservancy, animal or bird life, Australian art or architecture. Any such interest shown is at once picked up by one's hosts and combined with suitable excursions, barbecue picnics and suitable introductions. Indeed, any such line can rapidly build up into a major commitment! It was particularly pleasing to find the sense of importance of nature conservancy which has recently come very much to the fore.

It is important to include New Zealand with one's visit to Australia, or vice versa. New Zealand, with its green countryside and splendid scenery, offers a happy contrast to the rather arid Australian landscape. Gastroenterology, as in Australia, has rapidly developed in recent years and hospitals have built up first-class gastroenterological services, and it is clear that the New Zealand Society of Gastroenterology is another young and progressing Society, with Dr Brian Scobie as President. Each of the three modern hospitals in Auckland has a particularly well organized department of gastroenterology, and it was interesting to find the integration of effort which was possible under one board of management for the city and to see the collaboration which

Notes and activities

A Gastroenterological tour of Australia and New Zealand

A visit to gastroenterological centres in Australia and New Zealand is a particularly memorable and invigorating experience. My visit took me to Perth, Adelaide, Melbourne, Sydney, Canberra, and Auckland, with the opportunity of attending the Spring (October) meeting of