

ABSTRACTS

ABSTRACTS OF PAPER READ AT THE VI SINGAPORE - MALAYSIA
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5th - 8th AUGUST, 1971 — PATHOLOGY LECTURE THEATRE

STUDIES ON THE HEPATIC
TRIGLYCERIDE-SECRETORY AND
BILIRUBIN-CONJUGATORY MECHANISMS
IN TOXIC LIVER DAMAGE

J. S. Juggi

The blood and the biliary triglyceride levels have been studied in CCl₄ toxic rats in order to elucidate their contribution towards the genesis of fatty liver. Significant reduction in these levels have been found both in the acutely toxic and in Grade 3 cirrhotic groups of rats. The severity of decreases has been more in the acutely toxic group and there was a marked increase in the liver triglycerides of these rats. Concomitant with the reduced triglyceride levels, there was a defective hepatic capacity to conjugate all the injected unconjugated bilirubin. There was also a defective clearance of injected conjugated bilirubin in the acutely toxic rats as reflected by a greatly reduced rate of its excretion in the bile. This dual toxic effect of CCl₄ on the hepatic triglyceride and bilirubin conjugatory and excretory mechanisms has been interpreted and discussed in terms of involvement of a common metabolic regulatory site i.e. the endoplasmic reticulum. A possible hypothesis has been presented underlining the significant contribution of a defective biliary secretion of triglyceride in the genesis of fatty liver in rats. In the chronically toxic group of rats developing a Grade 3 cirrhosis with very much fibrosed livers, the cause of low blood and biliary triglyceride has been discussed and interpreted differently in the light of the available data.

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THE NON-ULCERATED RECTAL MUCOSA
IN ACUTE INTESTINAL AMOEBIASIS—
A MORPHOLOGICAL STUDY

K. Prathap and R. Gilman

Proctoscopy of 91 patients with acute intestinal amoebiasis showed no gross ulceration in 74 patients. The non-ulcerated mucosa was photographed and biopsied. Histological examination showed definite changes which have been described as non-specific lesion, mucopenic depression and early invasive lesion. These were correlated with the gross appearances as recorded in the photographs.

The non-specific change and mucopenic depression are preinvasive stages which do not

appear to have been recognised before. In both these stages, mucosal changes included the presence of significant numbers of neutrophils, although "crypt abscesses" were not seen. Presence of amoebae within tissues was accompanied by destruction of superficial tissues in every instance. The interglandular surface epithelium was the site of initial penetration.

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PRODUCTION OF RESISTANT STRAIN OF
TOXOPLASMA GONDII TO
ACETYLSPIRAMYCIN

Ichiro Nakayama

To date no report on a production of resistant strain of *Toxoplasma gondii* to drug has been found, probably because of lack of special effective drug for toxoplasmosis. Present report dealt with the production of resistant strain to Acetylspiramycin (Asp) belonged to a series of macrolide antibiotics. Antitoxoplasmic effect of Asp was first examined, resulting in showing prolongation of survival period of infected mice or eradication of parasite in the mice in accordance with dosage and administration period of Asp.

Highly virulent RH-trophozoites of *Toxoplasma* were inoculated into experimental and control mice intraperitoneally, and the former was given with Asp perorally for 6 days consecutively. On the 7th day, the number of survived mice and parasites in abdominal cavity of them in the both groups were counted and compared. The parasites obtained from the experimental mice were inoculated into the two groups of mice which were treated by the same way described above. Thus, the parasites harvested from 38 to 60 passaged experimental mice were shown to be resistant to Asp from the view point of the survival of infected mice treated with Asp and the numbers of parasites detected in them.

Stability of resistance to Asp was farther examined, and the resistance was illustrated to be fixed after serial transplantation of the resistant strain in mice without administration of Asp. In another series of experiment, the resistant strain showed to have a tendency of lower virulence to mice than normal RH-strain.

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VIBRIO PARAHEMOLYTICUS RELATED GASTROENTERITIS IN DJAKARTA, INDONESIA

S. W. Joseph, D. L. Goke, S. Nadrifil
P. F. D. Van Peenen and J. Widyaharsana

Vibrio parahemolyticus has been reported as the cause of gastroenteritis in Ceylon, Hawaii, Hong Kong, India, Japan, Korea, Shanghai, China, Singapore, Taiwan and Thailand. In Japan this organism has been implicated as the agent responsible for 50% to 60% of "summer diarrhea".

From a total of 400 hospitalized patients and individuals experiencing gastroenteritis in Djakarta, Indonesia, *V. parahemolyticus* has been isolated by us in 20 instances. In each instance no other enteric pathogens were isolated.

Of the 20 isolates 6 were serotype K3, 1K8 and 1K32. Six were non-typable, but biochemically, confirmed and are being investigated further. The additional six isolates have been biochemically confirmed as of this date and await serological confirmation.

An unusual occurrence of rough colony characteristics by the K3 strains was noted on blood agar. Whether or not this is directly related to virulence factors remains to be resolved.

These findings suggest that *V. parahemolyticus* is also a cause of diarrhea in Djakarta and perhaps other parts of Indonesia as previously described in other South-east Asian countries. A continuing study should provide more definite information concerning occurrence, involvement and virulence of this organism in other areas of Indonesia.

These findings also are consistent with previous experience that detection of *Vibrio parahemolyticus* in certain areas can be obtained by actively attempting to isolate this organism.

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POSSIBLE INTERACTIONS OF VARIOUS CENTRAL DEPRESSANTS WITH AMPHETAMINE AS OBSERVED ON THE MOTOR ACTIVITY AND BEHAVIOUR IN MICE

Utpal Banerjee and Oo Sooi Lin

Spontaneous motor activity and general behaviour were studied in homogenous groups of mice treated with various central depressants and amphetamine. To examine the variations of interactions, the depressant drugs were given before and after amphetamine, the second drug following the first in its declining phase, or simultaneously with it.

Reserpine, given in any combination with amphetamine, acutely potentiated its excitatory action and toxicity as compared with the effects of amphetamine alone. Pentobarbitone and paraldehyde given before amphetamine increased its activity, often significantly, while given afterwards these usually revived or prolonged amphetamine effect, often induced convulsiform seizures and significantly increased the mortality; when given simultaneously, these drugs barely potentiated amphetamine effect with marked prolongation but little toxicity. Phenobarbitone and chlorpromazine, on the other hand, chiefly antagonised amphetamine effect on behaviour but not its toxicity, although prior phenobarbitone sometimes increased and prolonged amphetamine effect. Ethanol and diazepam potentated amphetamine effect and toxicity when preceding the stimulant, but showed initial antagonism and late revival of amphetamine effect as well as its prolongation when administered otherwise.

In conclusion, it appears that chlorpromazine alone of all the sedative-depressant drugs studied could antagonise amphetamine effect on the central nervous system. Most other drugs potentiated, revived or prolonged the action of amphetamine and augmented its toxicity. It follows, hence, that amphetamine is not a suitable drug to counteract the ill effects of most central depressants, and *vice versa*.

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TIME LAPSE AND NORMAL SPEED CINE-MICROGRAPHY IN MEDICAL RESEARCH AND EDUCATION

N. B. Bhonsale, R. Kanagasuntheram
and Victor Chua

Movie film is a most effective communication medium. The present paper is a *film show* and deals with various uses of cinematography in research and education. Studies of live cells in culture, their morphology, growth characteristics and behaviour in culture is presented at normal speed photography and time lapse cinemicroscopy, with some very interesting results.

Cinematography conveys specific information and is closest to personal experience. A subject can be treated with greater depth. It stimulates interest and holds attention. This attributes render it invaluable as an effective tool in research and education.

Dynamic morphology of normal and cancer cells as well as various aspects of morphogenesis are currently under investigation, with time lapse cinemicrography as the main instrument.

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CYCLOPHOSPHAMIDE IN THE TREATMENT OF STEROID RESISTANT OR LARGE DOSE STEROID DEPENDENT ADULT NEPHROTIC SYNDROME

Feng Pao Hsii and Seah Cheng Siang

The treatment of idiopathic adult nephrotic syndrome is still an enigma. All clinicians are familiar with a group of patients who are resistant to steroids or large doses of steroids have to be used to obtain clinical remissions resulting in intolerable side-effects. As the limitations of steroid therapy has become more widely appreciated, interest has grown in other immunosuppressive agents particularly cyclophosphamide (Endoxan). We describe in this paper our experience in the treatment of 16 such patients. 7 patients showed a satisfactory response both from the clinical and biochemical point of view. It is suggested that a course of cyclophosphamide should be tried in those patients who do not respond to steroid therapy.

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ASYMPTOMATIC PROTEINURIA IN A GROUP OF YOUNG ADULT MALES IN SINGAPORE

B. T. M. Chen, B. S. Ooi, C. H. Lim
and O. T. Khoo

During a period of 18 months between October, 1969 and March 1971, 180 young adult males were referred to the Renal Unit in Outram Road General Hospital for investigations of asymptomatic proteinuria discovered on routine medical examination prior to National Service. The aim of this study is to determine the incidence of orthostatic proteinuria and asymptomatic renal disease in this group of persons and to follow-up cases of orthostatic proteinuria to determine the stage of disappearance of proteinuria and the long term prognosis of this condition.

The following investigations were performed on every person referred: orthostatic proteinuria test, urinalysis, full haematological examination, biochemical studies including serum protein and serum cholesterol, renal function tests including blood urea, creatinine clearance, maximal osmolar concentration and intravenous pyelogram, and renal biopsy. Additional investigations were done for persons with microhaematuria.

The results of the first part of this study will be presented and discussed.

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RECURRENT HEMATURIA WITH LEUCOPENIA

Colonel Francis C. Cadigan, Jr.
and Lt. Col. J. C. Wilson

Although cases of "benign" hematuria have been described in the past, it was not until 1966 that "benign familial" hematuria was described by McConville *et al.* In 1969, Marks and Drummond reported a family in which seven out of eight siblings had "benign" hematuria. We have observed two siblings with "benign" hematuria for over a year. Our cases, however, are different from the previously reported cases in that the leucocyte count is depressed at the time of hematuria. This was only slight in the boy but has been marked in the girl. Each time, the WBC has returned to normal before microscopic hematuria disappears. Other authors have either stated that their cases have normal white blood cell counts or that the WBC "showed no evidence of infections". It is possible that our cases are due to an infectious agent either viral or rickettsial. If other similar cases are known in this area, a detailed search for the cause should be undertaken.

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SOME PROBLEMS ENCOUNTERED IN A MAINTENANCE HAEMODIALYSIS PROGRAMME

C. H. Lim, O. T. Khoo, B. T. M. Chen
G. S. Lee, B. S. Ooi and Lim Pin

In 1968, two patients were initiated into a maintenance haemodialysis programme. Since then, a total of 19 patients have been regularly dialysed at one time or another. Three patients have died, and one transplanted with a cadaver kidney. This is a report of the main medical and social problems met with in the course of 3½ years' experience.

This programme was initiated with the aim of providing treatment for patients with end-stage kidney disease by haemodialysis and eventual renal transplantation. Only one patient has received a transplant because of the lack of cadaver donor kidneys. Thus only a small number of patients have been given the benefit of regular dialysis treatment and many patients have been denied treatment from lack of vacancies in the programme.

The main medical problems encountered are as seen in other centres, viz., shunt problems, hypertension, anaemia, renal osteodystrophy and, recently, hepatitis amongst two members of the staff and two patients. Psychologically, the patients are on the whole well-adjusted except for anxiety over the shunts in the patients with repeated

clotting episodes. Although most of the patients have managed to hold their jobs, a few have had to accept work of a lighter nature resulting in a lower income.

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SOCIAL ASPECTS AND REHABILITATION OF PATIENTS ON HAEMODIALYSIS

P. Fernandez, Lim Cheng Hong
and O. T. Khoo

The social worker's role in the Renal Unit can be viewed as pervasive, spanning the treatment continuum from diagnosis to selection and through the process of adjustment to the demands of haemodialysis and kidney transplant.

In all forty-three patients have been referred and fifteen patients were selected.

In social selection emphasis is placed on the number of persons who are dependent materially and/or emotionally on the patient; and on patient's ability to recognise the importance of dietetic restrictions and his willingness to co-operate with treatment.

Rehabilitation and Employment

92.8% of the patients claimed they were able to continue in employment, some with modifications in their duties, and at different levels of output.

46%—Were doing the same amount of work as normal persons. Of these two have been retrenched and are looking for work.

46%—Claim their output of work is reduced to half of normal output.

Problem: To obtain employment for those who have lost their jobs. In a sense these patients are handicapped to some extent and for this category of persons employment is difficult to obtain.

Stresses Faced by Patient

Their physical condition (uremic effects and complications) is a constant source of anxiety, varying in degree with each patient.

Main anxiety is related to employment and care of dependants.

Frustrations include limitations of diet and changes in self image.

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MALFUNCTION OF THE QUINTON- SCRIBNER CANNULA: EVALUATION BY SHUNT ANGIOGRAPHY

C. L. Oon and C. H. Lim

Chronic renal failure is being increasingly managed by intermittent haemodialysis. To gain access to the circulation and to facilitate the

dialysing procedure, an arteriovenous Silastic Teflon shunt is inserted. A modified form of Quinton-Scribner cannula has been used in our study group. Breakdown and malfunction constitute a vexing problem in this form of therapy. 40 angiographic examinations were carried out to determine the cause of cannula failure. The result of this study made over a period of two years is presented. Technical artefacts which may be mistaken for pathological changes are also discussed in this paper.

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URINARY SODIUM EXCRETION IN JAUNDICE

Visith Sitprijia

Hyponatremia is frequently noted in the patients with obstructive jaundice. In order to define the mechanism responsible for its development a sodium balance study was made in 14 patients with jaundice and 6 control patients. The total serum bilirubin in jaundiced patients ranged from 6 to 49 mg./100 ml.; there was no evidence of cirrhosis or severe impairment of liver function. After a period of 7 days on salt free diet the urine sodium excretion was markedly diminished in the control patients, indicating intense tubular reabsorption of sodium. Over a wide range of jaundice 10 patients, whose total serum bilirubin varied from 19 to 49 mg./100 ml., showed impaired tubular reabsorption of sodium with continued sodium loss on salt free diet. In 4 patients with serum bilirubin from 6 to 10 mg./100 ml. the tubular reabsorption of sodium was intact and comparable to the control group.

In all patients the endogenous creatinine clearance and the blood volume were decreased during the period of salt free diet. The decrease was more pronounced in the severely jaundiced patients. The study was repeated in 4 patients during the period of recovery when jaundice had disappeared. The results were within the normal limit.

It is therefore concluded that jaundice inhibits tubular reabsorption of sodium and hyponatremia is the result of urinary sodium loss.

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LACTOSE INTOLERANCE IN AN INDONESIAN COMMUNITY

Pedro C. San Diego

Lactose intolerance due to lactase deficiency is a newly recognised differential diagnosis of Gastro-intestinal Disorder causing diarrhea, bloatedness and gas pain. It is common in Asians. Incidence low in the whites and the Europeans.

Studies done in an Indonesian community revealed that 55% of the adult population tested has lactose intolerance. Representative of this group came from South and Central Sumatra, West, East and Central Java. 25% of the 50 patient tested has history of milk intolerance related to the amount ingested at one time. 15% has occasional symptoms of gas abdominal distention after ingestion of milk or food stuff that probably contain lactose to some degree. 60% does not have history of milk intolerance. Milk intake varies from 1-3 glasses every day.

Lactose tolerance test was carried out after a 12 hour fasting of all patient by giving 50 gms. of lactose in 500 cc. of distilled water. Blood sugar determinations are obtained at 0, 15, 30, 60, 90 and 120 minutes.

Previous studies done believed that lactose intolerance due to lactase deficiency is probably of adaptation genetic origin. Other were of the opinion that it is due to dietary adoption of the intestinal mucosa. Some has proposed that the defect may be acquired or congenital in origin.

Lactase deficiency is a mild clinical entity but if remain unrecognized could be debilitation and fatal. Awareness of this condition by the clinician will lead to early recognition and immediate institution of proper therapy.

Indonesian has also high incidence of lactose intolerance. The poor economic situation may be a contributory factor. It is apparent that high incidence of lactase deficiency do exist in this area.

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A SIMPLE TECHNIQUE FOR HYPOTONIC DUODENOGRAPHY

Joginder Singh

Hypotonic duodenography was introduced by Liottain 1955 and this was modified in 1963 by Mallet-Guy and Jacquemet. Raia and Kreel later refined this method in 1966. The duodenum is paralysed with vagolytic drugs and thereafter barium is introduced directly into the duodenum via a special tube. A double contrast examination can then be performed by inflation of the duodenum with oxygen. With this method the contractions and relaxation of the duodenum can be overcome and this helps to study the pathology in and round the duodenal loop.

The method of hypotonic duodenography we employ in the Department of Radiology, University of Malaya is a very simple one. Patients with obstructive jaundice, suspected pancreatic tumours or unexplained abdominal pain during a routine barium meal examination are given an intravenous injection of 20 mg. of Buscopan. This paralyses

the duodenum within 5 minutes and radiographs are then exposed of the duodenal loop in various positions under fluoroscopic control.

The duodenal loop with its intimate relationship to the head of the pancreas, the Ampulla of Vater, the common bile duct, the gall bladder and a group of lymph nodes helps a radiologist in hypotonic duodenography to diagnose pathology of these organs. With a conventional barium meal only 20% of the lesions in the head of the pancreas can be detected, but with the help of hypotonic duodenography we have had ten proven cases of pathology around the duodenal loop. Raia and Kreel (the pioneers of this method in U.K.) claim 75% accuracy. In addition to suggesting the diagnosis, duodenography defines the limits of the disease within the duodenum and common bile duct. This saves considerable time and unnecessary dissection at operation and facilitate the planning of the operative procedure.

Hypotonic duodenography appears quite an accurate method of diagnosing advanced pancreatic tumours and other lesions around the duodenum. With only a handful of radiologists in Malaysia this method is an easy and quick one. It should be employed in cases of obstructive jaundice, suspected pancreatic lesions and unexplained upper abdominal pain.

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ANICTERIC VIRAL HEPATITIS IN BLOOD DONORS IN SINGAPORE

W. P. Fung, Y. W. Ong, S. B. Kwa, K. K. Tan
E. H. Yap and M. J. Simons

More than 86,000 apparently healthy blood donors were screened for anicteric viral hepatitis, in a 4 year period, from 1967 to 1970. Screening was by inspection of the donors' sera for an icteric colour. In addition, cases, whose blood was incriminated to have caused jaundice in the recipient, were also studied. The diagnosis of anicteric viral hepatitis was based on an abnormal level of S.G.P.T. and or S.I.C.D. In addition, 5 cases had histological evidence of viral hepatitis.

Thirty-two cases of anicteric viral hepatitis were found, giving a mean annual incidence of 0.04%. The majority (25 cases) were completely asymptomatic. The liver was slightly enlarged in half the cases. In 9 cases, anicteric hepatitis persisted for more than 3 months, ranging from 4 months to as long as 52 months. All these cases of persistent anicteric hepatitis recovered eventually, as shown by a return to normal of the S.G.P.T. and/or S.I.C.D. Sera from the last 12 cases were tested for the presence of Australia antigen. Three cases were positive.

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GASTROSCOPY WITH THE OLYMPUS GTF MODEL IN THOMSON ROAD GENERAL HOSPITAL, SINGAPORE

K. L. Chua and C. S. Seah

During a period of 3½ years (January 1967 till July 1970), 350 gastroscopies were performed on 300 patients for various abdominal complaints. Of these, 221 (74%) were found to have some gastric abnormality. The common disorders seen were benign gastric ulcers, acute gastric lesions and gastric carcinoma, accounting for 87% of the gastric diseases.

85 patients presented with upper gastro-intestinal bleeding, and early gastroscopy revealed that in more than 80% of the cases some cause for the haemorrhage could be detected. Another group of acute disorders, associated with recent drug (particularly the anti-inflammatory drugs) intake, was also examined and in 85% of them, gastric abnormalities were seen.

Amongst the more chronic conditions, such as chronic benign and malignant gastric ulcers, correct evaluation of the nature of the ulcer was obtained in 93% (98 out of 105 cases). Finally, a group of patients with suspected gastric diseases were assessed by both radiology and gastroscopy, and it was found that combined investigations showed a very high percentage of correct diagnosis.

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SUGAR INTOLERANCE IN INFANTILE GASTROENTERITIS

Gary S. G. Tan and R. R. W. Townley

Thirty-seven (37) infants below the age of 6 months admitted to the gastroenteritis section of the Gastro-Respiratory Unit of the Royal Children's Hospital, Melbourne, during a 5 month period (December 1968 to April 1969), were studied. It was found that 18 infants (48.6%) had sugar intolerance at some time or other of their illness as evidenced by watery stools with an abnormally high content of sugar in the stools and a clinical response to the introduction of a lactose free formula. This sugar intolerance was not related to the aetiological factors associated with the gastroenteritis. It appears to be more common within the first two weeks of the illness and occurs more commonly in the first 3 months of life than the second 3 months. Because response to a lactose free feed is so good it is stressed that early recognition of this complication will prevent a great deal of morbidity and mortality due to dehydration and may prevent structural damage to the intestinal mucosa.

A possible mechanism and the sequence of events that can occur in sugar intolerance due to infantile gastroenteritis from the acute stage to that of established intestinal mucosa abnormality is postulated.

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THE FACE IN NEUROLOGICAL DIAGNOSIS

C. Pallis

'Careful examination of a patient's face may provide useful clues as to the cause of a wide variety of neurological symptoms such as epilepsy, personality change, myopathy, cerebellar ataxia, acroparaesthesiae, peripheral neuropathy, deafness, etc. This general proposition will be supported by a number of illustrations, recording specific facial clues to clinical diagnosis.'

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MOTOR NEURONE DISEASE IN YOUNG ADULTS

Lim Kee Jin

Motor neurone disease is usually described as a disease affecting persons of middle age or later, but sporadic cases in younger cases are known. This communication is a report of 4 cases seen recently in young adults. Three of the four cases had E.M.G. carried out and are suggestive of this condition.

There did not appear to be any obvious aetiological factor in these patients which may be responsible for the disease. Discussion concerns the likely causes and a survey of the literature. It is hoped that other clinicians will report similar cases which they may come across.

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A NEW DIAGNOSTIC TEST FOR CARPAL TUNNEL SYNDROME: A PRELIMINARY REPORT

S. C. Loong and C. S. Seah

The electrophysiological techniques currently employed in the diagnosis of the carpal tunnel syndrome include the measurement of distal motor latency and the estimation of digital sensory amplitude and conduction. While the diagnostic value of these methods is considerably enhanced by their combined application there still remains a group of patients with typical symptoms who escape confirmation.

In the course of establishing normal conduction values for the authors' laboratory it was observed that the amplitude of the median digital (index finger) sensory nerve action potential was

consistently greater than that of the ulnar digital (little finger) sensory potential. This median to ulnar sensory ratio of greater than one was not unexpected as the median digit is the larger and functionally more important digit and presumably carries more sensory fibres. This prompted the authors to investigate the probable alteration of this ratio and its diagnostic significance in the carpal tunnel syndrome.

In a series of 10 patients with typical carpal tunnel syndrome, 4 with bilateral involvement, a "reversal" of the normal median to ulnar sensory ratio was found in all but one of the 14 clinically affected hands; these included 2 of the 3 hands which failed to show a prolonged motor latency and 4 of the 5 hands in which sensory conduction remained within the normal range. These results indicate that comparison of the median and ulnar digital sensory nerve action potential amplitude is a valuable diagnostic test for carpal tunnel syndrome and appears to have greater sensitivity than techniques previously described.

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WHY PATIENTS ATTEND A PSYCHIATRIC CLINIC

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Teoh Jin-Inn, J. D. Kinzie and Tan Eng-Seong

This is a report of a study of an evaluation of the reasons patients seek psychiatric consultation at a University Hospital Psychiatric Clinic. This is of particular interest because of the lack of psychological sophistication of the surrounding community, the lack of knowledge of psychiatric techniques and approaches, and because there are traditional methods within the community for the handling of mental illnesses.

The results of the study showed that 68% of all outpatient cases sought psychiatric consultation because of 'subjective distress', while 65% of cases requiring inpatient care were brought by relatives who were unable to cope with the patient's abnormal behaviour. Cases sent for psychiatric assessment were mainly patients suffering from mental subnormality and were negligible in number.

58% of cases complaining of 'subjective distress' came unaccompanied, while 99% of those whose relatives were unable to cope with them, were accompanied.

It was found that the lower social classes consulted traditional healers more frequently than the upper social classes, and with equal frequency for all sorts of psychiatric conditions (whether neurotic or psychotic in nature).

Relatives were 'unable to cope' in 87% of psychotic disorders and 23% of non-psychotic disorders.

Furthermore, the paper deals with a breakdown of the data among ethnic groups, socio-economic classes and educational levels. The reasons for these implications and differences is discussed.

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EYE SIGNS IN CHRONIC OBSTRUCTIVE LUNG DISEASE

Chew Beng Keng, Cheah Jin Seng
and Joel De Costa

Thirty patients with chronic obstructive lung disease and a similar number of controls matched for age, sex and ethnic groups were examined for lid lag, lid retraction, exophthalmos and papilloedema. Results showed 28 cases of chronic obstructive lung disease had definite eye signs compared with only 2 cases in the control. Thyroid function tests and the standard liver function tests were performed in all the 28 cases. None of these cases revealed any evidence of thyroid dysfunction. All except 3 cases had abnormal liver function tests.

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PROGRESS OF MEDICAL AND SURGICAL TREATMENT ON PARKINSONISM

H. Narabayashi

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THE MANAGEMENT OF SPONTANEOUS PNEUMOTHORAX—A PRELIMINARY COMMUNICATION

A. Heng and N. C. Tan

This is a review of 53 cases of spontaneous pneumothorax referred to the Cardio-Thoracic Unit, Tan Tock Seng Hospital, Singapore from January 1967 to May 1971. All the cases were referred from the various medical units after a period of treatment.

The majority of these cases were recurrent pneumothorax. Other cases referred were those with massive haemopneumothorax, and those after a period of unsuccessful conservative treatment.

Broadly, the cases can be divided into three groups:

- (a) Recurrent Spontaneous Pneumothorax in the younger patients (19 patients);
- (b) Massive Haemopneumothorax (9 patients), and
- (c) Spontaneous persistent pneumothorax in the older age group with previous chest disease and poor respiratory reserve (25 patients).

The management differs in each group of cases.

In the first group of patients, pleurodesis by open operation was done. The technique used in these cases will be described.

Those patients with massive Haemopneumothorax had exploratory thoracotomy done on them, the clots evacuated and haemostasis obtained.

Pneumothorax in those with poor respiratory reserve, usually in the older age group, were treated conservatively by large bore intercostal tubes with gentle constant pressure suction.

This paper sets out to analyse the factors which exist in these patients and present a rational approach to the management of this problem taking cognisance of these factors.

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SILICOSIS IN "RUBBER POWDER" WORKERS IN SINGAPORE

Poh Soo-Chuan and Chow Pin Kee

A clinical, radiological and functional study was carried out in workers employed in the "rubber-powder" factories in Singapore, and evidence of silicosis was seen in 56%. Pulmonary function was abnormal in 62% and was of a restrictive pattern. Workers who had been exposed for more than 3 years showed impairment of lung function with X-ray evidence of silicosis.

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A NATIONAL TUBERCULOSIS TREATMENT SURVEY IN SINGAPORE

Chew Chin Hin and D. M. MacFadyen

The physician's scientific training induces him to continually examine and re-examine his methods of therapy in order to achieve the most satisfactory results for his patients. In tuberculosis, careful clinical observation has shown that optimum results are attained if the physician adheres to certain standard robust regimens of chemotherapy. This practice of prescribing optimum standard therapy operates in both the governmental and voluntary services in Singapore and, in 1969, the various physicians in these two services co-operated in a prospective observational study to assess the effect of such treatment.

The methodology, organisation and results of the survey will be reported, together with an analysis of the contribution made by various factors to the response to treatment at one year, when 3% of the 3,422 patients registered were found to be yielding tubercle bacilli on culture and 4% was found to have died from tuberculosis.

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A CONTROLLED CLINICAL TRIAL OF SELF-ADMINISTERED VERSUS FULLY SUPERVISED TREATMENT OF PULMONARY TUBERCULOSIS

S. Devi and D. M. MacFadyen

A total of 327 eligible patients from Tan Tock Seng Hospital were admitted to this controlled comparison of two basically different policies of ambulatory continuation thereapy, one based upon self-administration of medicaments (SPH/PH policy), the other upon fully supervised administration (SPH/S₂H₂ policy). Both policies achieved a very high degree of therapeutic efficacy, the proportions alive, attending and culture negative at one year being 91% for the 155 patients assessed in the SPH/PH series and 98% for the 163 patients assessed in the SPH/S₂H₂ series.

The findings of this research work—which will be presented in detail—will allow modifications to be made to the existing policy on a firm basis.

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ELECTROCARDIOGRAPHIC FINDINGS IN CHRONIC OBSTRUCTIVE BRONCHOPULMONARY DISEASE

J. L. Da Costa

The electrocardiographic features in 113 cases of chronic obstructive bronchopulmonary disease are recorded. The commonest features were rightward deviation of the P axis (86%), clockwise 'rotation' of the transitional complex beyond V₄ (68%), the Lead I sign (66%) and P pulmonale (40%). Right ventricular hypertrophy (Grades 2 to 4 of Goodwin and Abdin, 1959) was noted in 19% of cases. Arrhythmias were noted in 26%, the most frequent being premature beats and atrial arrhythmias. Episodes of acute respiratory failure were found to be associated with an increase in height of the P wave in the standard limb leads, the axis illusion phenomenon, increase in height of the R wave (i.e. increased severity of electrocardiographic right ventricular hypertrophy) and depression of the S.T. segment and T wave inversion in the right-sided leads. The factors involved in the pathogenesis of these electrocardiographic findings are discussed.

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COMPUTER IN MEDICINE

John K. C. Pang

This paper describes the various components of a computer system and its mechanism. It illustrates examples of applications of the com-

puter in medicine which includes among other things, blood donation, pattern recognition, information retrieval, statistical analyses, etc.

It further illustrates how recent computer technological advance has enabled a hospital to be connected by one-line terminals to a computer many miles away via telephone line. One central computer can be shared by many hospitals under one unified set of standards.

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THE INCIDENCE AND HISTOLOGICAL CLASSIFICATION OF MALIGNANT LYMPHOMAS IN SINGAPORE (1960-1969)

K. K. Tan and K. Shanmugaratnam

It has long been suspected that some varieties of malignant lymphomas in man, like those in laboratory animals, may have a viral aetiology. More recently, it has been proposed that a background of parasitic infestation, e.g. malaria, in a community may have a bearing on the occurrence of some lymphomas. Histological studies are therefore essential in epidemiological investigations of this neoplasm.

This study is based on a review of histological material at the Singapore Institute of Pathology from 1960-1969. During this 10 year period, there were 377 cases of malignant lymphomas; these were classified histologically as follows:

1. Lymphosarcoma	-	-	123
2. Reticulosarcoma	-	-	135
3. Burkitt's Tumour	-	-	10
4. Hodgkin's Disease	-	-	77
(a) Lymphocytic Predominant	-	-	28
(b) Mixed Cell	-	-	25
(c) Lymphocytic Depleted	-	-	3
(d) Nodular Sclerosis	-	-	18
(e) Unclassified	-	-	3
5. Multiple Myeloma	-	-	19
6. Other Lymphomas	-	-	13

Some of the aetiological considerations in lymphomas may also apply to leukaemias. During the 1960-1969 period, 170 leukaemias were diagnosed histologically in Singapore. However, as only a small proportion of leukaemias are likely to appear in any histological series, no attempt was made to assess the frequency of this condition. Age specific and age standardised incidence rates of the various forms of malignant lymphomas will be presented in comparison with data from 14 other countries. The histological features will be illustrated.

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SOFT TISSUE EOSINOPHALIC GRANULOMAS OF THE FACIO-PAROTID REGION

H. S. Leong, K. K. Tan and Chia Kim Boon

This is a presentation of the clinical manifestations and pathological findings of 15 patients who presented with soft tissue swellings confined mainly to the face and chiefly in the parotid region from 1954 to 1968.

These patients can be broadly divided into 2 groups clinically, a younger group where the lesion tended to be localised and apparently responded to local excision well and the other older group, fewer in number where the lesion tended to be diffuse and where surgical treatment was apparently less successful and where recurrence were finally controlled by D.X.T. A report of similar experiences in a group case was reported in the Chinese Medical Journal, June 1962. It was with the knowledge from this Journal that D.X.T. was started after consultation with the Radiology Department here.

A search in other medical literature did not produce any further reports of such a condition.

The etiology of this lesion is still obscure and the frequency of its occurrences. Whether it is a distinct disease entity by itself we do not know. Its characteristic features both clinical and pathological and the apparent response to radiotherapy in the patient with recurrences inspite of repeated surgery prompted this paper.

Recently a paper has been presented by some African members of the medical profession on similar lesions at a recent International Medical Congress.

* * *

HEAT STABILITY OF HUMAN SERUM ALKALINE PHOSPHATASE IN BONE AND LIVER DISEASES

Tan It Koon, Chio Lee Foon and Lim Teow Suah

Heat stability studies on human serum alkaline phosphatase has been used as a means of identifying the organ-origin of the enzyme contributing to the total enzyme activity in the serum. The present investigation was undertaken to evaluate the usefulness of these studies for the differential diagnosis of bone and liver disease, particularly when elevated serum alkaline phosphatase levels were not associated with abnormal results of other biochemical tests for liver function.

Bone alkaline phosphatase was found to be more heat-labile than liver alkaline phosphatase and the two can be differentiated by pre-incubating

the serum at 56°C for ten minutes before enzyme assay. After heat treatment, serum alkaline phosphatase levels decreased to less than 15% of the original activity in patients with bone diseases and to 25-40% of the original activity in patients with liver diseases.

* * *

THE EFFECT OF A SEA SNAKE VENOM (ENHYDRINA SCHISTOSA) ON ACTION POTENTIALS RECORDED FROM THE ISOLATED CAT ASCENDING CERVICAL SYMPATHETIC GANGLION

P. N. Yeoh and M. J. A. Walker

Snake venoms have been observed by some authors to antagonize ganglionic transmission in certain preparations only (Chou and Lee, 1969; Chan and Chang, 1971). These inconsistencies could arise from poor penetration of the venom to the site of action. The present study was undertaken to examine the action of *Enhydrina schistosa* (E.S.) venom on ganglionic transmission. In order to overcome the problem of drug penetration, the isolated and desheathed cat superior cervical ganglion with attached pre- and post-ganglionic nerves were employed. Using extra-cellular leads, action potentials were recorded from the pre-ganglionic nerve, the post-ganglionic nerve and the ganglion on electrical stimulation of the pre-ganglionic nerve (See Bures, Petran and Zachar, 1967). The preparation was bathed in Krebs solution in control studies and in venom solution in the test studies (at room temperature and aerated with 95% O₂ and 5% CO₂). Several doses of the venom were investigated.

The results show that E.S. venom interferes with ganglionic transmission—the positive wave (P wave) and the spike (Sa) are reduced first, followed by the negative (N) wave. With 10 µg./ml., only the P and the Sa waves are effected. Complete abolishment of P, Sa and N waves are seen with 100 µg./ml. and above; maximum ganglionic blockade is achieved by 90 min. This effect can be reversed by washing the preparation in Krebs solution. The results also indicate that E.S. venom antagonizes ganglionic transmission without interfering with pre-ganglionic nerve function.

* * *

STUDIES OF ALKALINE PHOSPHATASE IN HUMAN JEJUNAL MUCOSA AND IN STOOL

- Pauline P. T. Goh and the Sprue Group

The activities of intestinal brush-border enzymes like the disaccharidases and non-specific alkaline phosphatase have been used as "markers" in the detection of disturbances in the intestinal

microvillous membrane, the vital barrier through which absorption occurs. In tropical sprue, villous atrophy of the brush-border region or microvilli of the mucosal cells of the small intestine occurs.

This study was conducted to investigate the effect of this mucosal change on alkaline phosphatase activity. The enzyme activity was assayed quantitatively on peroral jejunal biopsy specimens in three groups of subjects. The results showed that sprue patients (12) had lower enzyme activities than the controls (4) and the treated sprue patients (9).

Experiments were undertaken simultaneously to study the characteristics of alkaline phosphatase in stool homogenate in an attempt to establish its origin. The study showed that stool alkaline phosphatase was of intestinal origin.

* * *

LATENT CARCINOMA OF THE PROSTATE IN SINGAPORE CHINESE

Lee Yoke Sun and K. Shanmugaratnam

156 prostates were collected at necropsy from Chinese men over the age of 30 years without clinical evidence of prostatic disease, and examined step-serially for malignancy. Latent carcinoma was encountered in 13 cases (8.3%), whose ages ranged from 42 to 87 years. This figure is unexpectedly high considering the low incidence of overt prostate carcinoma in Singapore. The lesions were generally small and situated at the periphery subcapsularly; the lateral and postero-lateral aspects were implicated more frequently. All the latent carcinomas were adenocarcinomas. Based on cellular anaplasia and infiltrative aggressiveness they were divided into dormant and active forms. The relationship between these two forms of latent carcinomas and overt carcinoma is discussed. The ratio of overt to latent carcinoma increased with age; this increase was observed to be more gradual and of a smaller magnitude in Singapore than in areas with high incidence of overt carcinomas. It is concluded that factors (genetic, hormonal or environmental) responsible for the promotion of latent to overt carcinoma may be deficient in areas with low incidence of overt carcinoma.

* * *

SMALL BOWEL MORPHOLOGY AND FUNCTION IN SINGAPORE CONTROL SUBJECTS

Chong Kim Chow, F. J. Jeyaratnam
and Seah Cheng Siang

Control subjects from the three major ethnic groups in Singapore were included in the study.

There were 61 persons, 47 males and 14 females, between the age of 15 to 55, among whom were 25 Chinese, 20 Malays and 16 Indians.

The results of haematological investigations, biochemical tests of malabsorption and of jejunal biopsy will be presented. A small proportion were noted to have abnormal jejunal morphology and function and significant differences were observed in the various ethnic groups. Intestinal helminthiasis was noted in 13 subjects but no differences were observed in small bowel morphology, function and other parameters measured between this group and those without infestation. A chronic inflammatory cell reaction was frequently seen in the mucosa of these normal biopsy specimens and the presence of micro-organisms in some of the jejunal aspirates may implicate asymptomatic infection as a factor in the pathogenesis of these lesions.

* * *

SINGLE DOSE REGIMENS OF PHENYLENE DI-ISO-THIOCYANATE (1.4), JOINT, IN THE TREATMENT OF HOOKWORM INFESTATION IN MALAYSIA

Donal R. O'Holohan and J. Hugoe-Matthews

50 patients from 2 Malay kampongs were selected for study. All had hookworm ova in their stools. Before treatment with the drug the stools of each subject were examined on 5 successive days and an egg count (Stoll Technique) was made. Only subjects with an average load of 1,000 eggs per gram. (or more) were admitted to the trial. Stoll counts of concurrent *Ascaris* and *T. trichiura* infestations were also carried out. Three regimens of drug dosage were used on the basis of age i.e. *age group* 5-9 years, 10-14 years and 15 years and over. Body weight and Haemoglobin estimations were carried before treatment and one month after exhibition of the drug. A second series of 5 successive daily Stoll count was made starting 30 days after exhibition of the drug.

The efficacy of the single dose regimens was assessed as follows:

1. Patients acceptability of the drug.
2. Side effects—immediate and delayed.
3. Reduction in the egg count 30 days after treatment.
4. Changes in the Haemoglobin and/or body weight.
5. Reduction in the egg counts of the other two parasites.

On the basis of the results obtained with single dosage regimens the suitability of this drug as a desirable compound for mass eradication of hookworm infestation is discussed.

* * *

MYELOFIBROSIS—A REVIEW OF CLINICAL AND HEMATOLOGICAL FINDINGS IN 17 PATIENTS

Y. W. Ong, S. B. Kwa, C. S. Seah, C. H. Chew
B. T. M. Chen and K. K. Tan

The clinical and hematological findings in 17 patients with myelofibrosis are reviewed. The majority of patients were over 50 years of age. The most common presenting symptoms were generalised weakness and fatigue (7 patients) weight loss (6 patients) and pressure symptoms due to splenomegaly (5 patients). Hepato-splenomegaly was the most prominent physical finding.

Variable degrees of anaemia were present in all the patients. This was often associated with the presence of tear drop shaped red blood cells, giant platelets and a leuco-erythroblastic reaction in the peripheral blood. Elevated leucocyte alkaline phosphatase scores were found in about 50% of the patients.

Difficulty was often encountered in obtaining marrow fragments by needle aspiration and provided an important diagnostic clue. Confirmatory evidence of diagnosis was obtained in the majority of cases by surgical bone marrow biopsy of a rib or iliac crest.

The average duration of survival from the time myelofibrosis was first diagnosed up till death was 20 months. The longest survival is seven years.

Androgens, corticosteroids and busulphan have been used in therapy with favourable results in some patients. Blood transfusions form the mainstay of treatment in the later stages of the disease. A conditioned folate deficiency is often found in myelofibrosis and improvement in the anaemia often follows folate therapy.

* * *

THE SIGNIFICANCE OF AUSTRALIA ANTIGEN IN SINGAPORE

M. J. Simons, E. H. Yap, Y. W. Ong
and W. P. Fung

Australia antigen (Au) was detected in 3.0% of 2,563 Singapore Blood Donors using the technique of Electro-osmodiffusion. By the method of Immune adherence haemagglutination 6.4% of these same subjects were found to have Au. This frequency is of the same order as that reported for other populations living in tropical countries. A significant ethnic difference in Au carrier rate was demonstrated between Chinese, Malays and Indians.

More than 95% of blood donors are males. Examination of sera from 2,047 pregnant women by Electro-osmodiffusion revealed Au in a significantly lower frequency than in blood donors

(1.2%). This finding suggests a sex difference in Au frequency. It also indicates that blood donors may not be representative of the community at large, and that seroepidemiological studies are required to provide the additional information.

Very sensitive techniques are now available for the detection of Au, and of immunity to Au (antibody, immune complexes), enabling seroepidemiological studies to be undertaken. Until these studies are performed it is not possible to assess the significance of Au as a public health problem, nor is it possible to formulate policies for the protection of specific community groups at high risk of exposure.

* * *

TWO CASES OF HEATSTROKE WITH CONSUMPTION COAGULOPATHY

M. H. L. Yap, P. K. Mah, P. H. Lui and S. C. Loong

Two cases of heatstroke with bleeding diathesis are presented.

A review of the literature concerning the mechanisms involved in the haemorrhagic diathesis in heatstroke indicates that consumption coagulopathy is the most likely cause. This appears to be borne out by the good response to heparin in these two patients.

It is suggested that all patients with heatstroke be screened for consumption coagulopathy so that early treatment can be instituted.

* * *

A STUDY OF TWINNING IN SINGAPORE

Foong Yew Chun

A retrospective analysis (using Weinberg's differential method) of 750 pairs of twins delivered in Kandang Kerbau Hospital during the period of January 1967 to June 1969 showed that the Malays and Chinese have a monozygous/dizygous ratio 5 to 6 times that of Caucasians indicating a predominance of monozygous twinning in Singapore.

Monozygous/dizygous ratios of various races:

Malays	2.7	(Singapore)
Chinese	2.3	(Singapore)
Japanese	1.9	(Japan)
Indians	0.9	(India)
Caucasians	0.4	(Europe, England, United States)
Negroes	0.1	(Nigeria)

Prospective data obtained from the same hospital from August 1969 to April 1970 lent support to the above retrospective finding. Of the 174 consecutive twin pairs collected during the mentioned period, 75 were found to be mono-chorial, 79 dichorial, and 20 unknown because the

placentas were badly torn or disposed off before examination. This monochorial/dichorial ratio which is about 1:1 differs from that of western countries whose ratio is around 1:4 (about 20% of their monozygous twins are dichorial). In 85.3% of the monochorial placentas vascular anastomoses were macroscopically demonstrated by air injection, but none were found amongst dichorial placentas. The effect of these anastomoses on the intra-pair haemoglobin differences were studied. It was found that the mean intra-pair haemoglobin difference of 56 monochorial pairs was 2.9 gms./100 ml. while that of 66 dichorial pairs was 2.3 gm./100 ml. This difference was statistically significant, P being between 0.05 and 0.02. The litter weights of monochorial and dichorial twin pairs were 4.31 kgs. (9.51 lbs.) and 4.74 kgs. (10.46 lbs.) respectively. Testing this difference for statistical significance P approaches 0.05.

* * *

AZATHIOPRINE IN PEMPHIGUS AND PEMPHIGOID

M. W. Greaves, J. L. Burton, Janet Marks and R. P. R. Dawber

Azathioprine (Imuran) has been given to 6 patients with pemphigus and 13 patients with pemphigoid. In the majority of patients with either disease it was possible by giving Imuran to greatly reduce, or withdraw altogether the previous maintenance dose of corticosteroids.

* * *

THE USE OF 5-FLUOROURACIL IN THE TREATMENT OF SUPERFICIAL SKIN MALIGNANCIES

John H. S. Pettit

5-fluorouracil inhibits the formation of thymidilic acid and so interferes markedly with the synthesis of DNA. Like all other cytostatic agents it does not selectively destroy tumour cells; it inhibits the growth of rapidly proliferating tissues. When given systemically it is most successful in the treatment of mammary carcinoma.

Recently it has become the drug of choice for a number of superficial skin malignancies. Local treatment of 1-5% 5-fu in propylene glycol or in an ointment base has produced highly successful results in cases of actinic keratoses, particularly on the face, kerato-acanthomata and the less deep examples of basalcell epithelioma.

A personal series of 25 cases is commented on and details of the treatment are discussed, with special reference to patients seen in a Malaysian clinic.

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TREATMENT OF MODERATELY SEVERE ERYTHEMA NODOSUM LEPROSUM WITH CLOFAZIMINE—A CONTROLLED TRIAL

Helmy Syed Helmy

Erythema Nodosum Leprosum (ENL) is without doubt one of the most serious complications of lepromatous leprosy, and there is urgent need of a non-toxic drug which will control the reaction, and enable the ENL patient to return quickly to his work.

A controlled trial, designed to be double blind, will be described in which ten patients suffering from moderately severe ENL were studied for a total of fourteen weeks. The trial was subdivided into an initial control period of two weeks, followed by a first trial period of four weeks in which either treatment with clofazimine 300 mg. daily or identical placebo capsules was prescribed, then by a second trial period of four weeks in which the treatment given (clofazimine or placebo) was the reverse of the first trial period, and concluded with a final control period of four weeks. Dapsone was given throughout in the dose of 100 mg. twice weekly.

Results based on five different methods of assessment will be presented which show clearly that the ENL improved during the period in which clofazimine was given. Eight of the ten patients did not develop any signs of clofazimine toxicity (two developed mild gastro-intestinal symptoms for the first few days on clofazimine), they were able to carry on their normal daily activities and did not require any special medical supervision. It is concluded that clofazimine is an effective drug in the treatment of moderately severe ENL, and that it is suitable for domiciliary use.

* * *

TREATMENT OF REACTIONS IN LEPROSY

M. F. R. Waters

Reactions comprise the most serious group of medical complications occurring during the course of treatment of leprosy. Hitherto, the mechanisms of the different reactions were unknown, their classification was controversial, and rational treatment was difficult.

Collaborative work by the Leprosy Research Unit, Sungei Buloh, initiated in 1968 and still continuing, has confirmed that the majority of reactions may be classified according to two main groups. Erythema Nodosum Leprosum (ENL, lepromatous lepra reaction) occurs in more than 50% of lepromatous and small numbers of borderline-lepromatous patients, and is due to the formation of immune complexes (Wemambu

et al, 1969, *Lancet*, 2, 933). Lepra reactions (leprosy exacerbations) occurring over the broad central section of the leprosy spectrum are due to changes (either gain or loss) of cell mediated immunity against *Myco. leprae*.

The results of a series of controlled clinical trials of the treatment of leprosy reactions, performed at the Leprosy Research Unit during 1965-1971 will be brought together to produce for the first time a logical and practical system of treatment. Differences in the management of the two main types of reaction will be emphasized, and areas of persisting uncertainty will be defined.

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IMMUNOGLOBULIN LEVELS IN SINGAPORE SCHOOL CHILDREN

Freda M. Paul and Tay Leng

The purpose of this survey was to establish normal immunoglobulin levels in Singapore school children. In a previous survey 102 newborn cord blood samples and 224 infants and children up to the ages of 2 years had their blood analysed for IgG, IgA and IgM levels, among the 3 ethnic groups in Singapore. The method used was the method of Sharpless and Lo-Grippe. Twelve Singapore schools were visited and a total number of 519 samples of blood were taken from healthy school children. All three ethnic groups, namely, Chinese, Malay and Indian, children were included in this survey, and the age groups varied from 5 to 16 years. The results were analysed with a view to seeing if there were any differences between the two sexes, and the three ethnic groups, and to determine the mean normal immunoglobulin levels at the various age groups. The results will be discussed.

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THE ABORTION ACT, 1969—A REVIEW OF THE FIRST YEAR'S EXPERIENCE

S. B. Kwa, S. T. Quah and Mark C. E. Cheng

Following the implementation of the Abortion Act (1969) to reform and liberalise the abortion laws in Singapore in March 1970 up to 31 December 1970 a total of 3,093 applications for termination of pregnancy were received by the Abortion Board. This paper summarises the initial experience and contrasts it with that of other countries. Of the applications received, 2,726 (80%) were approved. 1970 terminations of pregnancy were performed, 98% of which were carried out in Government Hospitals and 2% in approved private institutions.

94% of applicants were between the ages of 20 and 44 with 3% under 20 years of age. 50% of applicants had no formal education whilst 34%

had only primary education. 73% of applicants were housewives whilst 24% were working either full or part-time. 80% of applicants had a total monthly income of between \$100-\$400.

83% of applications were approved for socio-economic reasons. In 3% of applications, approval was given for medical indications. Less than 1% of abortions were carried out on the opinion of two independent medical practitioners.

Based on the first ten months' experience, the abortion rate for Singapore was 0.95 per thousand population whilst the abortion ratio was 50.8 per thousand live births. The effect of legalised abortion on the birth rate, morbidity and mortality from abortion and the practice of family planning is discussed.

The review showed that there was a definite bias against the approving of abortions on socio-economic grounds for those in the under 30 years, low parity and high income groups.

* * *

SOME CLINICAL ASPECTS OF LEGALISED TERMINATIONS OF PREGNANCY IN SINGAPORE

Mukhtiar Singh Sidhu, Mark C. E. Cheng
Choo Hee Tiat and D. Vengadasalam

This paper presents the results of 1,628 terminations of pregnancy conducted at the Kandang Kerbau and Thompson Road Hospitals between April and December 1970, under the authorization of the Termination of Pregnancy Board.

Terminations were carried out by various methods; viz.—dilatation and curettage, vacuum aspiration, hysterotomy and intra-amniotic injection of hypertonic saline. The duration of pregnancy of these cases varied from 6 to 21 weeks.

There were no mortalities in the series. Of the immediate complications, 6 per thousand (10 cases) were complicated by haemorrhage severe enough to require blood transfusions; and 5.5 per thousand (9 cases) sustained perforation of the uterus. Of the delayed complications, the more significant ones were, incomplete evacuation (31 cases), pelvic infection (19 cases); while the less significant ones were, pyrexia of unknown cause (30 cases), abdominal wound breakdown or infection (18 cases), and urinary tract infection (10 cases). The overall morbidity was 8.6% (140 cases).

From this study it would appear that the ideal method of terminating pregnancies with regard to safety and minimizing complications, were vacuum aspiration for cases below 14 weeks' gestation and intra-amniotic hypertonic saline for cases beyond 14 weeks' gestation.

* * *

SHOCK FOLLOWING ABORTION (A REVIEW OF 58 CASES)

Allan Y. H. Ng

An attempt was made to assess the magnitude of the problems of shock following abortion in the University Department of Kandang Kerbau Hospital between 1968 and 1970.

The overall incidence of shock following abortion was 2.3% from a total of 2,619 abortions. The incidence of haemorrhagic shock was 1.3% as compared with 1% of shock from septicaemia. There was an increase in the incidence of septic shock, while the incidence of haemorrhagic shock remained unchanged.

The complications associated with shock since 1968 following abortion were mainly renal failure, peritonitis, jaundice, myocardial failure, anaemia and abscess formation. There were few significant complications following haemorrhagic shock. Two patients were anemic from undertransfusion and one developed an urinary tract infection as a result of catheterisation. In contrast, there were several serious complications arising from septic-aemic shock. The morbidity and mortality was greater following septic shock than haemorrhagic shock. There were 3 deaths out of 2,619 abortions and all 3 were due to septicaemic shock resulting from criminal abortion. Two patients developed peritonitis of which one died and two developed renal failure and both died.

The problems of management were mainly those arising from septic shock; the vexing problems were the early detection of visceral damage, the choice of an appropriate antibiotic and the timing of uterine evacuation. About 50% of the cases of septic shock were due to *E. Coli*, which, in the majority of cases, was sensitive to Ampicillin and Chloramphenicol. Also a few cases of staph. Aureus were sensitive to Ampicillin. It would appear that Ampicillin is a good antibiotic of choice initially. Late uterine evacuation appears to carry a high mortality. Of the 3 deaths, 2 were not evacuated and 1 after 48 hours.

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A FOLLOW-UP STUDY OF PREGNANCIES WHICH WERE NOT TERMINATED

D. Vengadasalam, H. T. Choo, M. S. Sidhu
and Mark C. E. Cheng

From March to December 1970, 3,093 women applied for abortion through the Termination Board, Ministry of Health, Singapore. Of these 2,726 applicants were approved and 367 applicants were rejected by the Termination Board for various reasons.

The present study is based on two aspects. Firstly to study the outcome of 307 patients whose pregnancies were not terminated at the Kandang Kerbau Hospital even though their applications were approved and secondly to determine the fate of pregnancies of those patients whose applications were rejected by the Termination Board.

Of the 307 patients whose pregnancies were not terminated, 247 or 80% did not turn up for termination on the appointed date, while 60 patients (20%) turned up on the appointed date but changed their mind at the last moment. 45% had decided to continue with their pregnancies, 19% refused termination because of the fear of an abdominal operation, 18% had spontaneous abortions and 11% had abortions induced elsewhere. It would appear from the first part of the study that a considerable number of patients will change their minds at the last moment and continue with their pregnancies even after their applications were approved by the Board.

Regarding the second aspect of the study letters and questionnaires were sent to the 361 patients whose applications were rejected. Of those patients who could be contacted by letters, questionnaires and social workers 67.5% continued with their pregnancies, 18.5% had spontaneous abortions and 8% had abortion induced elsewhere.

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A STUDY OF UNMARRIED MOTHERS SEEKING LEGAL ABORTION

H. K. Teoh and C. S. Ong

From April to December 1970, 130 single women seeking termination of pregnancy were interviewed by the almoners.

1. To assess personal, social and economic factors and submit social reports to the Board.
2. To advise applicants and offer alternative help where appropriate.

The ages of the applicants ranged from 12-38 years, with 58% over 21. Thirteen percent were very young girls under 18 years. The racial composition of 77% Chinese, 11.5% Malays, 7.7% Indians and 3.8% other races may reflect roughly the general population structure of Singapore. The main reasons put forth were desertion by putative father, putative father not free to marry, financial obstacle to marriage, and applicants not interested in marriage yet. Eighty percent were from lower social-economic class and 20% from lower middle class. Clerks, domestic servants and

factory workers form the majority of applicants who were working.

Half the applicants claimed to be engaged or had steady friendships with the putative fathers, 7.7% were cohabiting. Fifty-seven percent sought abortion without their parents' knowledge. Eleven applicants withdrew after interview. Of 25 cases too advanced for termination, 6 decided to marry, 13 were supported during their pregnancies and had given their babies away for adoption, 3 kept their babies, and we lost contact on 3 cases. Single women sought legal abortion as the first solution, especially where marriage was not possible. Alternative solutions were acceptable only when abortion was refused.

* * *

EARLY HOSPITAL DISCHARGE OF FEMALE SURGICAL STERILISATION CASES

Johan A.M. Thambu

This is the second prospective study at the Maternity Hospital, Kuala Lumpur of the author's method of female surgical sterilisation, directed at early post-operative discharge from hospital. The three basic features of the author's method are:

1. Skin Incision

Two types of skin incision were used:

- (a) Umbilical semicircular skin incision if the patient was operated within the third post-partum day.
- (b) Suprapubic transverse skin incision if she was operated after the third post-partum day.

2. Tubal Ligation

The part of the fallopian tube for ligation was from an area where the branch of the uterine artery was furthest from the fallopian tube. The tube was crushed at this point and two transfixing silk sutures were placed about 3 mm. on either side.

3. Wound Closure

The peritoneum was closed by a purse string suture. The skin closed with subcuticular continuous catgut suture.

In this study the majority of the patients were discharged from hospital by 48 hours. In the first study which was carried out at the General Hospital, Kuantan, from January 1968 to March 1971, 84.8% of the patients operated were discharged post-operatively by 48 hours.

The author has found this method to be a simple and effective surgical procedure, for family limitation in countries faced with the problem of bed shortage for sterilisation operations.