

The Singapore Family Physician



ISSN 0377-5305

**The
College of General
Practitioners Singapore
Vol. VIII No. 3
July/September 1982**



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¹ Acta Paediatrica Scand. 1979; 68: 351-5, 441-2, 813-17.

² Codex Alimentarius Commission Joint FAO/WHO food standards programme. Recommended international standards for foods for infants and children. CAC/RS 72/74 - 1976. Rome: Secretariat of the Joint FAO/WHO food standards programme, 1976.

³ American Academy of Pediatrics. Committee on Nutrition. Commentary on breast-feeding and infant formulas, including proposed standards for formulas. Pediatrics 1976; 57: 278-85.

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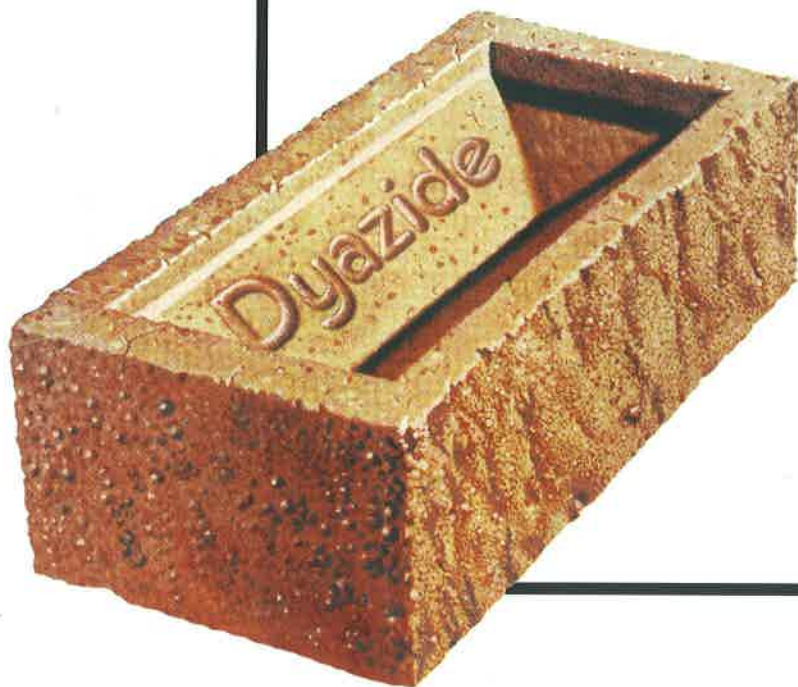
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The College of General Practitioners Singapore
4-A College Road, Singapore-0316

Vol. VIII, No. 3

July/September 1982

Price to Non Members \$5.00

MC (P) 28/3/82

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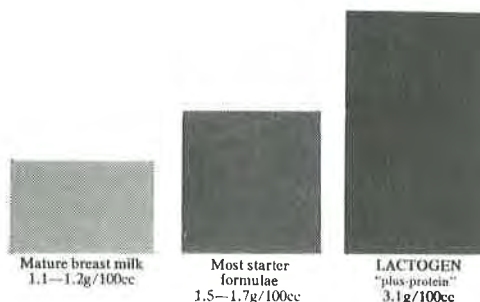
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Dept. of Health and Social Security, U.K. 1974

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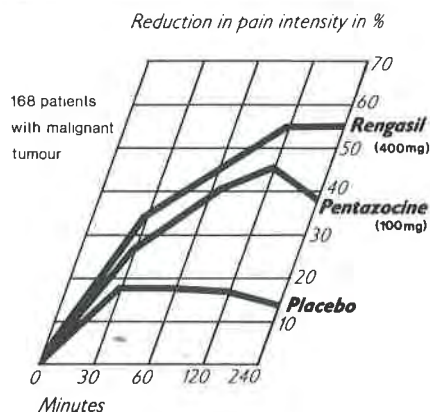
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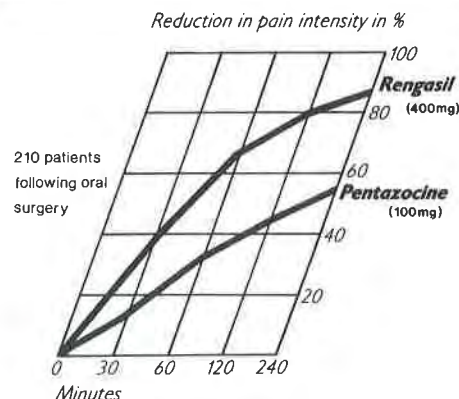
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Further product information available on request **CIBA**

1 Buckert D.: Int. Symp., 1Xth Europ. Congr. Rheumatol., Wiesbaden 1979
2 Sperr W.: Int. Symp., 1Xth Europ. Congr. Rheumatol., Wiesbaden 1979

EDITORIAL

The Kidneys in Perspective

The kidneys one on either side of the thoracolumbar spine are not conspicuous organs in terms of their size, weight and retroperitoneal location. Their combined weight is less than that of the heart. The normal excursion of the kidney between deep inspiration and expiration is equivalent to one vertebral body. A movement exceeding 2.5 cm is considered abnormal.

Their inconspicuousness however belies their importance. The kidneys each with a rich network of capillaries together with a million nephrons (5 million centimetres of tubular epithelium) are responsible for a multiplicity of functions. They regulate the body milieu or internal environment within narrow limits in spite of great variations in intake and metabolic activity.

They are the major portals for the exit of water, electrolytes and tissue waste products. They control body fluid volume, osmolarity and pH. Apart from elaborating pressor and depressor substances they are equipped with an endocrine function on the bone marrow. In response to the degree of renal hypoxia, a renal erythropoietin factor (REF) is produced. Acting enzymatically, REF converts an alpha 2 globulin of the plasma to erythropoietin which in turn controls the activity of the erythroid marrow. Two distinct prostaglandins are said to be synthesized in the kidney medulla. They may act as "local hormones" contributing to autoregulatory vasodilation and in regulating sodium excretion as well as systemic blood pressure. Their role in the overall regulation of renal function awaits further clarification.

Functional Resilience

The normal blood urea level of 15-45mg/100ml on a normal diet remains remarkably and therefore deceptively normal despite an appreciable reduction in the glomerular filtration rate (GFR). Not until the GFR has fallen to about 25ml/min i.e. one fifth of normal is there any noticeable elevation in the blood urea.

Platt followed by Bricker postulated that generally in chronic renal failure, any nephron already

damaged was non-functional. All renal function would be undertaken by the remaining intact nephrons which would be then working under an increased load. This was the so called "intact nephron hypothesis" which held sway at that time.

However it is now known that even damaged nephrons remain functional. Thus in distal tubular diseases (pyelonephritis and hydronephrosis) and in proximal tubular diseases (Fanconi syndrome and the heavy metal poisoning) damaged nephrons remain functional.

In the anuric patient where the cause, ascertained by renal biopsy, is acute tubular necrosis, ultimate recovery is the rule. Two histological lesions are described in acute tubular necrosis. In one, necrosis of the tubular epithelium takes place without damage to the basement membrane. In the other, necrosis of both tubular epithelium and basement membrane occurs. This and the foregoing paragraphs attest to the remarkable ability of the kidney to heal and to function until the very end.

Coping with Chronic Renal Failure

There are at present three ways of coping with chronic renal failure — peritoneal dialysis, haemodialysis and kidney transplant. Many patients who would have died much sooner had been kept alive for many years with either peritoneal dialysis or haemodialysis and maintained nutritionally on the Giordano-Giovannetti diet or its modification. Very few patients are enamoured with peritoneal dialysis possibly because of the pain experienced with this treatment. It has proved its worth in that patients without renal function have been kept alive for up to seven years. Haemodialysis with its progressive refinement in the artificial kidney remains the mainstay of treating chronic renal failure. Renal transplantation only became a reality with the better understanding of tissue rejection and the technological improvement in surgical technique.

Kidney Transplant

There is a critical time period between death

and the insertion of the transplanted kidney. This period is divided into what is known as the "warm-ischaemia-time" (WIT) and the "cold-ischaemia-time" (CIT). WIT is that period elapsing between death and the cooling of the kidney to 4°C after its removal. If this period exceeds two hours, the chances of the kidney functioning subsequently are remote. Acute tubular necrosis which sets in at the time when blood ceases to flow through the kidney upon death becomes irreversible after the critical two hours. CIT is the cold storage time when the kidney is kept at 4°C up to the time of transplant. A time limit of 16 hours is acceptable. A time constraint of 18 hours determines the viability of the kidney transplant assuming that tissue matching is a perfect "fit". With life donors the time constraint is not so demanding.

Impediments

The paucity of kidney donations prevents the successful implementation of kidney transplantation as a major modality of treating chronic renal failure in Singapore. The impediments are numerous.

Confucius taught that the human body was a sacred gift of inheritance and only those who at the end of their lives returned their physical bodies whole and sound would be truly revered. The implication was obvious. Because the physical body was a sacred inheritance one had to account for any missing parts. The doctrine of the sacredness of the body extended even to the dead. Not unexpectedly the dissection of corpses was considered a violation and therefore strictly prohibited. The reluctance of Singaporeans of Chinese ancestry to donate their organs in whole or in part, before or after death, must be viewed in its proper perspective. The reluctance is a vestige of their cultural past. The persistence of the doctrine of the body's sacredness attests to the presence rather than the absence of Confucian values in Singapore's rich multiracial cultural system.

The sacredness of the body was not a strictly Chinese belief. In 16th Century Europe, Andreas Vesalius suffered prosecution for dissecting corpses for anatomical studies.

Likewise in America or New England as it was then called, popular belief in the sanctity of the grave and its contents led to numerous clashes between the lay public and medical schools. In one incident 300 men marched from Hubbardston to Castleton, surrounded the medical school and vociferously demanded the return of a stolen cadaver.

Treating cardiac failure, respiratory failure, renal failure and failure of other body organs are the daily lot of medical practitioners. Cardiac and re-

nal transplantations are medical realities today. In time to come, other organ transplantations may become feasible. At the moment the demand is for kidneys; in the foreseeable future patients' clamor may be for hearts, lungs and pancreases. It should not be forgotten that the first successful human tissue transplant was blood transplantation or transfusion. Who indeed was bold enough at that time to suggest that the heart and the kidney could also be transplanted? It is not idle speculation to suppose that every organ of the human body may be found to be transplantable if not as an entity then at least in part.

Dizygotic twin cattle which shared the same placental circulation i.e. linked circulation were observed more than twenty years ago to grow up with appreciable numbers of red blood cells from each other in their respective circulation. If they had not shared the same circulation **at birth**, red blood cells from each when injected into the other in adult life would be rapidly eliminated by an immunological response.

The above observations led Macfarlane Burnet to point out that potential antigens which reach the lymphoid cells during their "immunologically immature phase" in the perinatal period can in some way suppress any future response to that antigen when the animal reaches immunological maturity.

The fact that foreign cells when introduced into the body around the perinatal period can deceive it into accepting them as self-components in later life has very important implications.

As far back as a decade ago a medical laboratory reported the fusion of a human cancer cell with a fowl red blood cell. The two nuclei got on splendidly sharing a common pool of cytoplasm. The rather shrunken nucleus of the fowl red blood cell enlarged giving evidence of functional activity. The key to that success was "immunological tolerance".

The question which intrudes into our minds is this. How far should the medical profession go to satisfy the increasing demand for body organs?

The harvesting of cadaver kidneys according to a body of medical opinion can meet to some extent the demands for kidney transplantation if kidneys could be removed from people who in the collective decision of medical experts had suffered "brain-stem" death.

There is an equally responsible body of medical opinion that the concept of "brain-stem" death is unsatisfactory and unacceptable. The assertion that the presumption of death by a set of physiological parameters or clinical criteria should not be equated with death (total cessation of life) must

not be lightly dismissed. The presumptions or pre-suppositions of science especially medical science should not mistaken for its results or findings. Thus **the presumption of death is not death.**

Distraught parents or spouses should not be pressured to make decisions at the moment of their loss. Hence most doctors are reluctant to press the bereathed for permission to harvest the kidneys of the supposedly dead relative. When opinion is still divided on the issue of "brain-stem" death, can the bereathed make an honest response with any degree of equanimity of mind to a request for organs? Are they not being unseemly hurried to make a decision on the spur of the moment and on the still controversial definition of death? It should not be said that death was not a problem until the medical profession made it so.

The writer is not against the harvesting of organs when informed consent has been given by the next of kin or by the deceased prior to death. However the consent should have been made with the knowledge of all the facts, with equanimity of mind and in the absence of pressure. There must also be an assurance that the harvesting will only take place not on the presumption of death by a set of man-made criteria but upon the actual cessation of life.

Everytime an important medical advance is made, the threads of the professions's ethical web require realignment and reinforcement and the spatial pattern altered to accommodate the impact of changes brought about by the advance. Organ transplantation is a case in point.

The medical advance of today soon becomes the commonplace of tomorrow. The medical profession will be judged not so much on the number of advances it has made but more on the ethics it seeks to make the human body sacred. Can anyone honestly say that he can remember all the clinical teachings of Hippocrates? But what he handed down as the Hippocratic Oath will continue to be revered and remembered because it is a testament and memory of his great humanity.

Preventive Measures

Although many renal diseases — inherited, congenital, collagen and surgical — are not preventable, preventive measures against renal diseases even though successful against only a small number are still worth our best efforts.

It is still hard to explain why some patients with streptococcal infection fail to develop acute nephritis whilst others are not spared. In one study, 1 in 4 persons who have streptococcal infection with microscopic haematuria at the height of the infection develops acute nephritis subse-

quently. Those without microscopic haematuria have a 1 in 20 chance of developing acute nephritis.

There is at the moment no known method of preventing or retarding the development of diabetic glomerulosclerosis (diffuse or nodular). Adequate diabetic control does not appear to affect the outcome of the renal lesions. It should be mentioned here that patients with diabetes mellitus or myelomatosis are liable to develop acute renal failure with the administration of intravenous contrast medium in pyelography unless a water diuresis is simultaneously present. In myelomatosis the cause is probably due to the precipitation of myeloma proteins in the kidney blood vessels and tubules by the contrast medium aided and abetted by the increased viscosity of the blood in myelomatosis and the need for dehydration in conducting the I.V.P. In diabetes mellitus, the cause is uncertain.

In essential hypertension, the mortality risks are that 1/3 to 1/2 of patients die of heart disease; 1/6 die of cerebral vascular disease (haemorrhage/thrombosis) and 1/10 of uraemia from kidney failure. The rest of the deaths are unrelated to hypertension. Adequate and sustained lowering of the blood pressure to normal ameliorates the pressure effects on the kidneys.

Renal physicians are most unhappy with urinary tract instrumentation unless it is absolutely necessary. It has been pointed out that in the best of hands and under the most scrupulous aseptic precautions there is a 2% incidence of urinary tract infection. The catheterisation of the diabetic patient is especially to be avoided.

In the treatment of acute pyelonephritis which is commoner in the female, symptoms may pass off even in the presence of bacteriuria. Hence it is mandatory to culture the urine for proof of cure. The exact relationship between chronic pyelonephritis and recurrent attacks of acute pyelonephritis or persistent bacteriuria is uncertain. What is known is that recurrent pyelonephritis may ultimately lead to chronic pyelonephritis and renal failure. Hence the importance of adequate treatment of acute pyelonephritis.

Perhaps the most important and easy preventive measure is the avoidance of the use of nephrotoxic drugs. The use of alternative drugs will minimise unnecessary insults to the kidneys. Drugs are alien to the body and should be judiciously employed at all times. It is worth repeating that **there is no such thing as a perfectly safe drug.**

Analgesic abuse with phenacetin and paracetamol by patients must be strongly deprecated. Not only are they liable to cause nephropathy — necrotising papillitis, acute, subacute and silent pyelonephritis, they are also known to predispose the

The Fatal Truth

planted cornea may long continue to gaze, if not affectionately then at least warmly, at the rest of his organ-beneficiaries.

It is to be wondered whether these posthumous gifts will count for anything in the atonement and redemption of man's past sinful existence on the final day of judgement. Unfortunately, no one here on earth can offer a promise; otherwise there may well be more donors than recipients of organs.

Byron certainly knew what these lines meant when he wrote:—

**Sorrow is knowledge; they who know the most
Must mourn the deepest o'er the fatal truth,
The Tree of Knowledge is not the Tree of Life.**

Medical doctors who have tended the Tree of Knowledge and partaken of its fruits must now be left to face the **fatal truth**.

VC

[illegible]

The National Kidney Foundation is the only voluntary health organisation seeking the total answer to diseases of the kidney . . . prevention, treatment and cure. Its many-faceted programme brings help and hope to thousands of kidney sufferers through patient services, research, professional education, and public information. Activities such as the Organ Donation Programme are made possible by the voluntary contributions of a concerned and generous public.

The Editorial Board of the Singapore Family Physician would like to urge all members of the College of General Practitioners, Singapore and our readers to donate generously to the National Kidney Foundation, 705 Serangoon Road, Singapore 1232 (Tel: 2500200). All local donations are tax-exempted.

[illegible]

Views expressed in the editorial are not necessarily the official views of the College.

Uncommon Complications of the Common "Flu"

A Case Report

Dr. R K H Chin MBBS, MCGP (S)
3 Jalan Wangi, Singapore 1334

History & Presenting Complaints

LTH, aged 57 years, a male Chinese retired office-worker, presented at the Accidents & Emergency Department of St. Marks International Hospital on 15th April 1982 at 1840 hours with the following complaints:—

- 1) Severe dyspnoea & labored respiration with thick phlegmatous expectoration, chills, giddiness and feeling light-headed since 14.4.82.
- 2) A brief fainting episode at home two hours before seeking admission. For this fainting spell a family physician was consulted and because of his distressed condition was referred to St. Marks International Hospital for admission.
- 3) His present illness began on 10th April 1982 as a bout of "flu" with coryza, a slightly productive cough, chills, malaise and a low grade fever. He did not seek treatment but self-medicated with home remedies.

Past Medical History

In 1944, he was warded at the Tan Tock Seng Hospital for a left pleural effusion. The fluid was clear yellow and removed by paracentesis. He was however not treated for pulmonary tuberculosis probably because it was not tuberculous.

He gave a history of chronic hypotension for several years.

Personal History

He has been a smoker for the past 40 years, smoking about 20 cigarettes a day. He drinks alcohol in small amounts and only on social occasions.

Between 1959 to 1977 he has had treatment on numerous occasions for sexually transmitted diseases.

He does not keep aviary or animal pets and has not travelled out of Singapore recently.

Medical Findings on Examination

Temperature was 35.6°C.

Cyanosis of the lips, tongue and nail beds was noted.

The jugular veins were slightly engorged.

There was slight pitting oedema of both lower legs.

He was mentally alert but anxious and distressed, very dyspnoeic with a respiratory rate of 48/minute.

There were pronounced throat noises caused by the rattle of phlegm.

B.P. was 80/40 in the supine position.

Apex beat was 124/minute. There was sinus tachycardia with a tic-tac rhythm.

Respirations were shallow and poor chest excursions were noted. Scattered sibilant rhonchi and crepitations were noted over the entire chest with bronchial breath sounds over both mid-zones. The trachea was central.

The abdomen revealed an enlarged liver — 3 cms. palpable, which was firm but not tender.

Initial Diagnoses

The following initial diagnoses were entertained:—

- 1) Bilateral pneumonia with acute respiratory decompensation, probably of viral origin;
- 2) Chronic Obstructive Lung Disease;
- 3) Chronic hypotension and keeping in mind Acute Cor Pulmonale.

Management

Upon admission, LTH was given the following resuscitative measures:—

- 1) Bed rest in the propped up position,
- 2) Intranasal oxygen at 4L/minute,
- 3) Aspiration of phlegm two hourly,
- 4) Foley's catheter,
- 5) Input/output chart, B.P., Apex beat and respiratory rate at 2 hourly intervals

Progress

15th April 1982: 1920 hours.

Injection Lasix 20 mg i/m given.

Ampicillin 500 mg stet dose followed by 250 mg four-hourly.

Tab. Bisolvon i 4 hourly.

Salbutamol 2 mg 4 hourly.

Injection B-Complex 1 cc daily.

Mist. Expectorans 15 cc 4 hourly.

Investigations on admission revealed:—

- a) Arterial Blood Gas Analysis:
PO₂ 49.2 (80 — 100) mm Hg
PCO₂ 26.3 (36 — 44) mm Hg
Base excess — 6.6 (—2 to 0.2)
HCO₃ 15.7 (21 to 24) m. mol/Litre
- b) Blood urea: 125mg/100ml.
- c) Chest X'ray (0): Bilateral consolidation of mid-zones — picture of a "double pneumonia".
- d) ECG:
Sinus rhythm with tachycardia, 120 beats/min., no arrhythmia.
Tall broad P wave in Lead II
No RBBB; No right axis deviation
No Q waves; minimal ST segment depression of 1 mm in V6.

Conclusion

Hypoxia, Prerenal anuria, double pneumonia of unusual location, Acidosis with ? Cor Pulmonale.

16th April 1982: 0800 hours.

Temperature: 37.6°C.

Tongue furred and dry.

Patient not too distressed and cyanosis appeared to be less.

Bubbly, thick yellow sputum aspirated.

No frothy blood stained sputum noted.

B.P. 70/40

Respiration 60/minute.

No diuresis occurred, only 125 ml of urine collected over the past 10½ hours.

The patient was transferred to the Intensive Care Unit and injection Lasix 40 mg given with Theophyllin 200mg t.d.s together with Span K i b.d. ordered.

Comment: If no diuresis occurs, consider the need for peritoneal dialysis and possibly haemodialysis. Attempt forced diuresis with i/v mannitol in drip. Need for i/v infusion by noon if patient unable to take adequate fluids orally.

Patient unable to ingest 100 to 150 ml fluids hourly by mouth and general condition appeared to be deteriorating.

16th April 1982: 1215 hours

Dr. Poh Soo Chuan, Senior Consultant Chest Physician of Tan Tock Seng Hospital was consulted for a second opinion and advised the following:—

- i/v erythromycin 500 mg six-hourly in drip.
- Off digitalis, diuretics, Span k and ampicillin.
- Increase intranasal oxygen to 6L/minute.
- i/v 50% Dextrose — 1 litre in the first hour

followed by 3 litres over the next 24 hours.

Patients total urine output since admission was only 150ml.

16th April 1982: 1910 hours

B.P. 80/60. Apex beat: 146/minute with premature ventricular contractions as evidenced on the cardiac monitor screen. No further urine output.

Comment: The patient's condition had become critical as pre-renal failure appeared established. Further he was dehydrated, acidotic and cardiac arrhythmia had developed. Failing a diuresis in the next 12 to 24 hours peritoneal dialysis would have to be anticipated and possibly eventual haemodialysis. The respiratory distress had worsened.

Dr. Poh Soo Chuan was consulted by phone with a view to transferring the patient to the Intensive Care Unit of Tan Tock Seng Hospital in the light of the above development and the anticipated sequelae. This was graciously accepted and transfer of the patient to Tan Tock Seng Hospital was effected.

Follow up at the Tan Tock Seng Hospital

(1) 16th April 1982: 2125 hours.

750 ml urine was passed after forced diuresis by i/v mannitol and 2 units of plasma. Sinus tachycardia 140 — 160/min with frequent PVCs occasionally in salvos. B.P. 95/60 Temperature: 38.5°C when reviewed on 17th April 1982 at 0820 hrs.

(2) 17th April 1982: 1145 hours

Still tachypnoeic. Patient connected to Bennett's respirator with 40% oxygen after tracheal intubation.

Chest X'ray (1) showed increased opacities in both mid-zones.

1510 hours:

Patient more rested since intubation.

Chest signs unchanged.

B.P. 100/70

Apex beat: 170/minute

PO₂ = 60.8 mmHg

PCO₂ = 35 mmHg

(3) 18th April 1982: 0810 hours

Patient not cyanosed. Afebrile. B.P. 110/90

Apex beat: 110/minute, regular.

Generally improved.

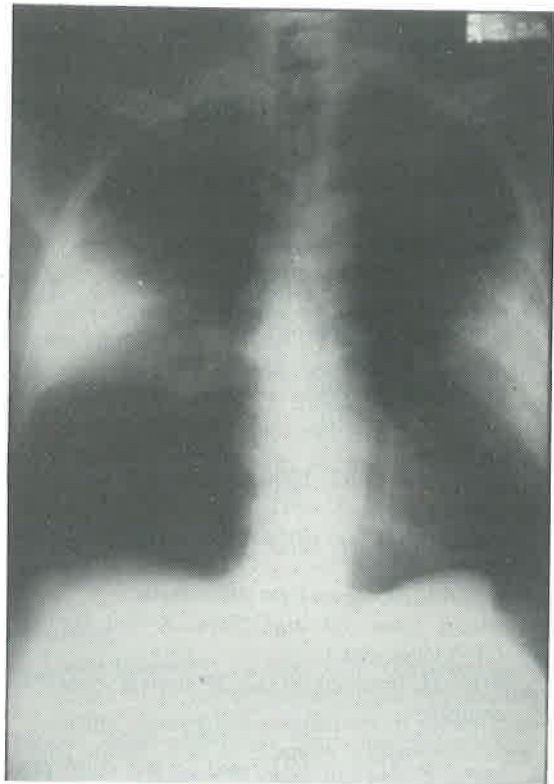
PO₂ = 66 mmHg

PCO₂ = 30.8 mmHg

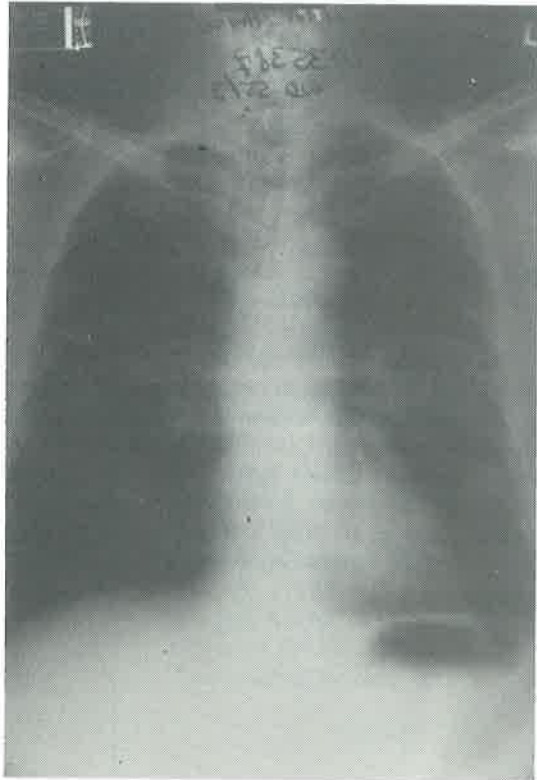
CHEST X RAY (0)



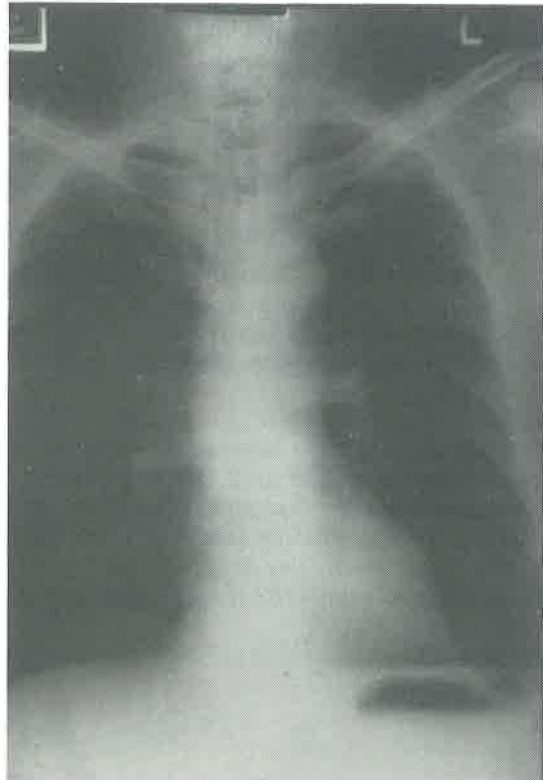
CHEST X RAY (1)



CHEST X RAY (3)



CHEST X RAY (4)



(4) 19th April 1982: 0820 hours

Fluid Input/Output: 1450ml/1500ml,
P02 = 68 mmHg
PC02 = 30.8 mmHg
HC03 = 22.1 m.mol/Litre
1500 hours:
B.P. 120/90
Apex beat 95/minute
P02 = 88 mmHg
PC02 = 22.9 mmHg
HC03 = 22.2 m.mol/Litre
Blood urea: 79 mg/100ml.
Chlorides: 1.2 mmol/L
K = 3.1 mmol/L
Na = 144 mmol/L
C1 = 113 mmol/L

(5) 20th April 1982: 1200 hours

Temperature: 37.4°C
Passed 800 ml urine after mannitol forced diuresis.
B.P. 140/90 Apex beat 88/minute.
Blood urea: 64 mg/100ml, K=3.3 Na=142
C1=113 m.mol/L
P02=84 (mmHg) PC02=34 mmHg HC03=23 mmol/L
Endotracheal tube removed. Nasal oxygen given at 4L/min. Oral feeding and chest physiotherapy commenced.

(6) 21st April 1982: 0815 hours

Jaundice with scleral icterus noted.
No constitutional symptoms. Liver: 3 cm palpable as on admission.
Temperature: normal. B.P. 140/90 Apex beat: 72/min. regular. Input/Output: 3000 ml/1000 ml with 3 watery stools.
1180 hours:
Transferred out of Intensive Care Unit to the Ward. Oxygen intranasally at 4L/min.
i/v erythrocine 500 mg 6 hourly for 2 days then orally at a dose of 500mg 6 hourly.

Comments

Liver function tests revealed no cause for the jaundice which cleared up 2 days later. This may probably have been iatrogenic. The patient continued to improve, making satisfactory and significant progress day by day and the Chest X'ray (3) taken on 23rd April 1982 (i.e. one week from the

onset of the acute episode) showed the bilateral mid-zone lesions to be resolving. An old pleural lesion in the left base was noted.

LTH was discharged from the Tan Tock Seng Hospital on 29th April 1982 having made a full recovery and Chest X'ray (4) taken on 6th May 1982 showed complete resolution of his pulmonary lesions.

Follow up on 2nd May 1982

Weight: 58.5 kg Urine 2 hrs. p.c.: Protein trace, Glucose:nil, icotest negative.
B.P. 120/80 Apex beat 80/min, dual rhythm.
Liver: 3 cm palpable.

31st May 1982:

Liver Function Tests: normal apart from an increase in Thymol turbidity 7.3 (up to 4 units)

5th June 1982:

Creatinine clearance test: normal.
Liver scan: normal.

Remarks & Acknowledgement

LTH's experiences are unusual and uncommon complications of "flu", the underlying chronic lung disease which was mild notwithstanding. Bilateral pneumonic consolidation affecting the mid-zones is rare presenting a picture of "double pneumonia" as seen in Chest X'rays (0) and (1).

Laboratory tests failed to incriminate mycoplasma, psittacosis or Legionella as the causative organisms. In the light of response to erythromycin therapy, the probable causative organism is likely to have been pneumococcal.

The single most important feature in managing this patient's illness is awareness of sequelae as each complication developed and to anticipate contingencies before they arise.

My grateful thanks are due to Dr. Poh Soo Chuan and his colleagues who so expertly restored my patient's health and to Dr. Ng Kwok Choy, Medical Director of Tan Tock Seng Hospital for access to the patient and his records. Special thanks are due to Mr. LTH for permission to tell his story and to Mr Ross T Schultz Director of St Mark's International Hospital for the use of LTH's records.

Artificial Insemination — Current Practice

Dr. V G K Ng MBBS, MMed (O & G), MRCOG

1103, Mount Elizabeth Medical Centre,
S'pore 0922

Introduction:

In the late 18th Century John Hunter was the first practitioner of artificial insemination in humans. He is reported to have advised a man with hypospadias to inject his seminal fluid into his wife's vagina with a syringe — a normal pregnancy resulted.

Not until 1945 were pregnancies recorded in Great Britain using donor semen (Barton, Walker and Wiesher, 1945) and by 1960 the Feversham Committee estimated that artificial insemination (AI) had resulted in approximately 1150 live births in the previous 20 years. At the same time in USA, Guttmacher (1960) reported that AI was responsible for between 5000 and 7000 births **annually**. In the 2 decades since these reports, the practice of human AI with either husband or donor semen has increased dramatically and has now an established role in the management of the infertile couple.

Although major advances have been made in the treatment of female infertility e.g. Ovulation

Induction, Tubal Microsurgery and embryo transfer, the treatment available for the infertile male remains limited. It is often stated that 10 to 15% of all marriages are infertile (Kistner and Behrman, 1975; Newton 1976); of these infertile couples, the male may be the major cause of the infertility in up to 40%. This gives an indication of the magnitude of the male factor.

Artificial Insemination with Husband's Semen (AIH)

Indications:

(1) Coital problems: In cases where psychological factors or physical abnormalities prevent the normal intravaginal deposition of semen during coitus. AIH is excellent for achieving pregnancy provided the husband's samples are of good quality as regards sperm numbers, morphology and motility.

Pollock (1967) reported an 85% success rate with AIH in patients with coital difficulty.

Table 1 — Results of AIH in oligo-zoospermia (20 million/M1)

Author	Patients	Pregnancies	Success(%)
Russell (1960)	34	2	6
Eckirling (1960)	4	0	0
Amelar & Hotchkiss (1965)	10	4	40
Behrman & Saurada (1966)	4	1	25
Speichinger & Mattox (1976)	13	1	8
Usherwood, Halim & Edwards (1976)	37	8	22
Scott et al (1977)	14	5	36
Steinman & Taymor (1977)	22	5	23
Decker (1978)	155	27	17
Glass & Ericsson (1978)	8	0	0
Harrison (1978)	20	0	0
Nunley, Kitchin & Thiagarajah (1978)	17	4	23
Whitelaw (1979)	82	10	12
Thompson & Boyle (1980)	28	2	7
TOTAL	448	69	15

Where impotence, premature ejaculation or apareunia are the indications for AIH, it is important that psychological assessment of the couple be undertaken and particular attention paid to the stability of the marriage. Retrograde ejaculation, in which semen will pass into the bladder, can be treated by AIH. Hotchkiss, Pinto and Kleegman have isolated spermatozoa from the urine.

- (2) The problem of reduced semen quality:** The effectiveness of AIH in overcoming the problems of reduced count or defective motility is controversial (Pollock 1967; Hill, 1970). Most series showed rather poor results with AIH for this problem.

The definition of oligo-zoospermia is not consistent in the literature. Macleod and Gold (1951) suggested a figure of 20 million sperm per ml of semen and reported that 5% of fertile males have counts below this level.

Table 1 shows the results of 14 studies in which AIH had been used in cases of Oligo-zoospermia, defined as sperm counts below 20 million/ml. The average pregnancy rate was only 15%.

Basically there are 2 approaches to the utilisation of AIH in those patients with poor semen quality. The first is to attempt to isolate or concentrate the motile sperm after ejaculation and the second is to employ methods which approximate the semen to the cervix or intrauterine cavity. Both approaches may be combined.

- (a) Concentration of sperm:** This uses the split ejaculate portion; the first part of the ejaculate has a greater concentration of sperm in 90% of cases. Amelar, Hotchkiss (1965) reported 56% success rate, but most of their patients had initial counts greater than 20 million/ml.

More recent studies (Steinman & Taymor, 1977; Decker, 1978) showed no improvement over the use of whole semen insemination.

Other methods include fractionation of semen on columns of Albumin (Ericsson, Langevin & Nishina, 1973). However its clinical application has been disappointing (Dmowski, 1979).

- (b) Insemination techniques:** This attempts to use semen sample more effectively by placing it in close contact with the cervix (with a cervical cap to hold the semen) or injecting it into the cervical canal or uterine cavity. AIH with semen containing less than 20 million sperms/ml appears to be a futile exercise.

- (c) The problem of the abnormal post-coital test:** AIH has been used with some success in patients with an abnormal post-coital test. But controversy rages over what constitutes an abnormal post-coital test. In spite of these limitations, Table 2 shows the results of 11 series of AIH for postcoital test.

Table 2 — Results of AIH for post-coital test

Author	Patients	Pregnancies	Success(%)
Guttmacher (1943)	5	0	0
Mastroianni et al (1957)	132	7	5
Russell (1960)	10	3	30
Perez-Pelaez & Cohen (1963)	38	10	26
Usherwood et al (1976)	13	4	31
Steinman & Taymor (1977)	25	8	32
Harrison (1978)	7	1	14
Ulstein (1978)	35	10	28
White & Glass (1976)	9	5	55
Kremer (1978)	22	7	32
Thompson & Boyle	34	6	18
TOTAL	330	60	18

Artificial Insemination with Donor Semen (AID) Indications for AID

- (1) Abnormal Semen — Azoospermia.
Severe oligo-spermia.
Disorders of motility.
- (2) Genetic disorders — recessive e.g. Cystic fibrosis, Huntington's chorea.
X-linked e.g. Haemophilia, muscular dystrophy.
- (3) Rhesus incompatibility.
- (4) Sexual dysfunction — Paraplegia, Impotence.

In practice, almost all AID were for azoospermia or severe oligo-spermia.

Pregnancy Rates

Table 3 shows the pregnancy rates in several published reports; this varies between 31.5 and 72%.

Curie-cohen, Luttrell & Shapiro, 1979, reported that in the USA the national success rate for AID is 57%.

Whether fresh or frozen semen is used should not affect the overall success rate, although it will take longer using frozen semen. There is no evidence that pregnancy loss following AID is any greater than after normal conception (Kleegman

1954; Levie (1967); Brownwich, Kilpatrick and Newton, 1978).

No published series has shown an increased of congenital abnormalities in these children. Theoretically the selection of donors to exclude congenital abnormalities will reduce the numbers.

Donor Selection and Matching

In most centres in the UK, donors are recruited from medical students. A donor must be physically and mentally healthy and must be prepared to submit to a full examination. Genetic history should be normal. Blood group is recorded. Semen analysis is performed and venereal disease excluded. Some centres go as far as obtaining a karyotype.

The degree of matching between husband and donor will depend on the number of unusual features of the husband and the size of the pool of donors. Locally, most of the requests are from the Chinese ethnic group and matching is not much of a problem.

Legal Implications

There are potential legal problems concerning AID. The legal status of the child is of the greatest concern to the parents. In the UK, such a child is illegitimate, (The Peel Report, 1973; Feversham Committee Report, HMSO, 1960) although the husband by his consent had accepted the child as "a child of the family" with all the associated rights and responsibilities. Several states in the USA have provided that AID is legal and that children born are legitimate providing there has been written agreement between husband and wife.

Table 3 — Reported success rates with AID

Author	Patients	No. of Pregnancies	Pregnancy Rate (%)	Total Pregnancy within 3/12 (%)	Conceived within 6/12 (%)
Chong & Taymor (1975)	142	103	72	73	95
Dixon, Buttram & Schum (1976)	171	61	36	72	93
Jackson & Richardson (1977)	604	355	59	39	63
Bromwich, Kilpatrick & Newton (1978)	214	82	38	36	65
Friedman (1977)	227	91	40	58	85
Joyce (1979)	149	47	32	—	29

In France, the problem was simplified by French Civil Code Article 312 which states that "the husband is considered the father of any child conceived during marriage" (Revillard, 1973). In order to remove the stigmata of illegitimacy it has been suggested that the AID child should be adopted by its parents, a process which would also secure the right of aliment and succession.

However, adoption makes the pregnancy a matter of public record and most parents are unwilling to publicise this information. Concern about privacy and confidentiality is a major influence on parents and where the law does not recognise their child as legitimate they most often elect to perjure themselves and record the mother's husband as the father on the birth certificate.

Conclusion

Patients contemplating conception by Artificial Insemination can be assured that their pregnancy will be as normal as that following natural insemination. In particular, there is no evidence of increased rate of abortion or fetal abnormality.

In general, the results of AIH are disappointing and patients should be made aware of this before such treatment is advised.

Pregnancy rates with AID are good using either fresh or frozen semen. It is the legal and moral implications of this procedure which raise the problems. A couple should consider these problems fully before proceeding.

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* A Review of Snake Bites Treated at Changi Hospital

Dr S K Teo MBBS, MRCP (UK)

Consultant-Physician, Dept of Medicine IV, Tan Tock Seng Hospital,
(Formerly Head, Dept of Medicine, Changi Hospital)

It is the impression of those who have worked in Changi Hospital that more cases of snake bites were treated there than in any of the other public hospitals in Singapore. This is not surprising, because Changi Hospital is situated in a predominantly rural area. This article is a review of 27 cases of snake bite seen over a 3½ year period from March 1977 to September 1980.

TABLE I
GENERAL FEATURES OF 27 CASES OF
SNAKE BITES TREATED AT
CHANGI HOSPITAL
(March 1977 – September 1980)

AWARENESS OF SNAKE BITE	
Certain of a snake bite	19
Uncertain of a snake bite	8
SEX RATIO	
Males	24
Females	3
AGE GROUPS	
10 – 19 yrs.	13
20 – 29 yrs.	3
30 – 39 yrs.	1
40 – 49 yrs.	3
50 – 59 yrs.	3
60 – 69 yrs.	2
Over 70 yrs.	1
OCCUPATION	
Student	5
National Servicemen	7
Housewife	3
Fisherman	1
Farmer	1
Others	10

TABLE II
GENERAL FEATURES OF 27 CASES OF
SNAKE BITES TREATED AT
CHANGI HOSPITAL
(March 1977 – September 1980)

LOCALITY WHERE BITE TOOK PLACE

a) Home:	
Indoors	2
Outdoors	2
Not stated	8
b) Other Places:	
Field	6
Camp	4
Road	1
Farm	2
Cinema	1
c) Not stated	1

TIME BETWEEN BITE AND ADMISSION

Less than 2 hrs.	17
Between 2 – 4 hrs.	7
Over 4 hrs.	2
Not stated	1

SITE OF BITE

a) Lower Limbs:	
Toe	4
Foot/ankle	11
Leg/thigh	3
b) Upper Limbs:	
Thumb/finger	6
Hand	1
Forearm/arm	1
c) Not stated	1

SNAKES IDENTIFIED (Small Number)

Shore Viper
Spitting Cobra
Python

Table I & II summarize the main features of the 27 cases seen. 19 patients were aware that they

*Reprinted with kind permission of Dr. P H C Lim, Hon. Editor, Changi Hospital Newsletter. Vol.1 No. 1 March 1982.

had been bitten by a snake, but 8 patients were not sure, either because they were bitten very suddenly so that they could not catch a glimpse of the creature or it happened in the dark. These patients were considered to have been bitten by a snake after an examination of the wound for fang marks and observing the reaction which developed later.

Snake bite is usually an occupational hazard^{1,2,3}. The victims are usually farmers, fishermen, estate workers and zoo keepers. Soldiers, campers and hikers are also more prone to snake bites because they train or stay in places which are snake infested. In this series of patients, 46% of patients were either students or national servicemen. Males outnumber females, the majority of whom are in their teens or twenties. The sex ratio reflects the activity of the male patients who spend more time on the field or in camps. Twelve patients were bitten at home, 6 were bitten on the field and 4 in camps. One was bitten while watching a movie in a cinema in the Changi area. Most of the patients were from districts 16 and 17. Most patients attended hospital within 2 to 4 hours following a bite. Patients were usually bitten on the extremities eg. hand or foot as these are the parts of the body most accessible to the snake when it is stepped on or when an attempt is made to capture it or when it is being handled by zoo keepers or people who keep snakes as pets.

Managements of snake bites

The majority of the bites treated at Changi Hospital were not serious. There was usually pain and swelling confined to the bite area. One patient had a more serious reaction after she was bitten by a poisonous snake. The swelling spread upwards from the ankle extending to the knee. Another patient was bitten by a creature which was presumed to be a snake. He came to hospital after a few hours delay and died very soon after admission.

Treatment consisted of giving toxoid injection and analgesic for pain. In some cases, pethidine was given for severe pain. When the wound became necrotic, the patient was referred to the surgeon for desloughing. Infection of the wound was treated by antibiotics. Only one patient received antivenom (the patient with swelling of the leg referred to earlier). It was given to prevent further spread of venom. After she was given 10 ml of antivenom, she developed paroxysmal atrial tachycardia which was controlled by anti-arrhythmic drug. Antivenom was discontinued and the patient was observed for signs of systemic poison-

ing which did not develop. She developed a big area of necrosis on her leg which required desloughing.

Discussion

Although snake bite is not common in Singapore, it is important to know the treatment for snake bite since systemic poisoning may occur. In Singapore, certain groups of people are more likely to be bitten because of their work or nature of their activities, eg. national servicemen, hikers, picnickers and zoo keepers. Although zoo keepers handle snakes frequently, it is rare for them to be bitten because they handle the snakes with great care. According to Reid⁴, no member of the staff of the London Zoological Society was bitten during a 10 year period from 1967 to 1976.

First Aid Treatment

Members of the public are usually stricken by fear and panic when they are bitten by a snake. It is important to reassure the patient that the majority of snakes are non poisonous and even bites by poisonous snakes seldom result in systemic poisoning^{3,4} for a number of reasons. The snake may have used up its venom in attacking a prey earlier. The fangs of the snake are prevented from penetrating the skin deeply because of clothing or there is insufficient time for the snake to inject its venom. A survey in Malaysia⁵ showed that less than 1% of victims died from snake bites even though the incidence of snake bite was high.

After receiving a bite, the wound should be left alone or covered with a clean handkerchief. Cutting the wound will cause more bleeding and introduce infection. No medication should be applied to the wound as handling the bite area will increase absorption of venom. The patient should not exert himself and the affected limb should be immobilized. Muscular contraction will cause more venom to pass into the circulation. Tourniquet should be applied for bites inflicted by cobra, sea snake and krait. In bites caused by the viper, tourniquet is harmful as the tissue is already deprived of blood due to the effect of venom on the blood vessels. When a tourniquet is applied, it is important to release the tourniquet every 10 minutes for 90 seconds.

Hospital Treatment

All patients should be admitted to a hospital for observation for at least 12 hours after receiving a bite to assess whether the bite was from a poisonous or non-poisonous snake. In general, the absence of pain or swelling within a few hours of

the bite indicate that the snake was non-poisonous. Poisonous snakes have special teeth in front of the jaw known as fangs which can leave 2 big puncture wounds at the site of the bite. Ideally, the snake should be captured and brought for identification. However, this is seldom the case, but if a snake is available, one can attempt to identify the snake by using one of the handbooks available⁶ or send the snake to the Singapore Zoological Garden for proper identification. In the hospital, the patient is observed closely for features of envenomation e.g. pain, swelling and toxic signs.

It is helpful to know that there are 3 main

groups of poisonous snakes: the Elapids which include cobras, mambas, kraits and coral snakes; the Hydrophilidae or sea snakes; the Viperidae which include the true vipers and pit vipers which are found locally.

The features of snake poisoning are summarized in Table III. In general, elapids cause neurotoxicity; the symptoms and signs to watch out for are: drowsiness, difficulty in speaking, swallowing, opening the eyes and paralysis. Symptoms occur within 1 to 5 hours. Death is due to respiratory failure and can occur within a few hours.

TABLE III
MAIN CLINICAL FEATURES OF SNAKE BITES⁺

Snake	Effects of Poisoning				Death — average time
	No Manifest Poisoning	Local	Systemic	Approx. mortality	
Elapids	50%	Slow swelling then necrosis eg. Asian cobra, African spitting cobra; other elapids no local effects	<ul style="list-style-type: none"> ● neurotoxic ● ptosis ● resp. paresis ● cardiac effects 	5%	5 — 20 hours
Sea snakes	80%	none	<ul style="list-style-type: none"> ● myotoxic ● myalgia on moving ● paresis ● myoglobinuria ● hyperkalemia 	10%	15 hours
Vipers	30%	<ul style="list-style-type: none"> ● rapid swelling ● necrosis 	<ul style="list-style-type: none"> ● vasculotoxic ● abnormal bleeding ● non clotting blood (same vipers only) ● shock 	1%	2 days

+ after Reid HA²

Sea snake bite is uncommon in Singapore. The only case that I am aware of was treated in Tan Tock Seng Hospital. This patient had both neurotoxic and myotoxic features which responded well to antivenom. In general, the venom is myotoxic giving rise to aches and pains within 1 to 2 hours followed by severe myalgia later, in response to the slightest movement. Myoglobinuria develops within 3 to 6 hours, causing the urine to turn a deep red brown colour. Death is due to hyperkalaemia and renal failure after 12 to 24 hours.

Viper venom is vasculotoxic and haemotoxic. It damages the blood vessel and cause clotting abnormalities resulting in bleeding. Pain occurs within 5 minutes, followed by swelling and in some cases bleeding. The damage to the blood vessels result in out-pouring of blood into the surrounding tissue. Eventually the tissue becomes gangrenous, separates from healthy tissue and leaves behind an ulcer, the size depending on the amount of venom injected. Certain vipers can cause clotting abnormalities (eg. Malayan pit viper), which is manifested as haemoptysis, bleeding from the gums and oozing from puncture wounds. The clotting time or Prothrombin Time is prolonged.

Antivenom

Antivenom is used to counteract the effects of systemic poisoning. There are 2 types of antivenom available in hospitals, one for sea snake poisoning and the other for land snake poisoning. The antivenom can be specific for a particular species of snake or it is a polyvalent preparation which is effective against a number of snake venom. The polyvalent is less effective than the specific antivenom but it is more useful especially when the identity of the snake is not known. Since antivenom is prepared from horse serum, it contains foreign protein which can cause an anaphylactic reaction. In general, a test dose of 0.2 ml is injected subcutaneously and the patient observed for half an hour. If there is no adverse reaction, 50 — 100 ml of antivenom diluted in 2 or 3 times its volume of saline should be given intravenously within an hour⁷. The bigger dose should be used for more serious poisoning. If there is no improvement, another 100ml of antivenom can be given 1 hour later. It must be remembered that an allergic reaction can occur even when there is no reaction to a test dose. For

this reason, it may be necessary to give antivenom immediately without a skin test when the patient's condition is very critical. Adrenaline and hydrocortisone should be drawn up in syringes ready to be given when the need arises.

Patients with an allergic history should also be given antivenom when it is judged that the consequence of withholding antivenom treatment is more serious than the risk of developing anaphylactic reaction. In such cases, 2 saline drips should be set up, one containing antivenom, hydrocortisone and Phenergan, and the other containing adrenaline in saline. If there is a reaction, the adrenaline can be given immediately. Needless to say, it is preferable to use a smaller dose of antivenom and give it more slowly initially.

It must be emphasised that antivenom is seldom required in most patients as only a small proportion of the patients develop systemic poisoning. However Reid⁴ has suggested that antivenom can be given when swelling extends rapidly up the limb for bites from snakes whose venom causes local necrosis eg. Asian cobras, puff adder, rattlesnakes etc. The antivenom should be given within 5 hours of the bite to minimise local necrosis. In general, the effect of antivenom is less dramatic for elapid poisoning compared with sea snake or viper poisoning. Full recovery of patients may take weeks or months.

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Elective Cholecystectomy

Dr P H C Lim MBBS, MMED (SURG),

Surgical Registrar,

&

Dr L B Tan MBBS

Surgical Trainee

Dept of Surgery

Changi Hospital

Singapore 1750

INTRODUCTION:

Of the gastrointestinal diseases managed by the general practitioner, the problem of cholelithiasis is one of the commoner conditions for which surgical consultation is often required. Once this is done, surgery is usually advised and subsequently performed. This paper is a retrospective review of the results of surgical treatment of 34 consecutive patients referred for cholecystectomy and should serve as a guide for the family physician who is often asked whether surgery is necessary and what risks it entails.

CLINICAL MATERIAL & METHOD:

Between January 1979 to January 1981, a total of 34 patients were referred by their attending physicians to the Dept of Surgery, Changi Hospital, when a plain abdominal film revealed gallstones (10 cases), or an oral cholecystogram ordered showed gallstones or a non-functioning gallbladder (24 cases).

There were 19 females and 15 males with the following racial distribution: Chinese=27, Malay=5, Indian=1, Eurasian=1. Their ages ranged between 30 to 80 with an average of 51.7 years.

SYMPTOMS:

The symptoms which led these patients initially to seek the help of their family physicians are summarized in Table I. It can be seen that the commonest complaint was either right hypochondrial pain (55.9%) or epigastric discomfort (52.9%). Each patient could present with more than one complaint.

RISK FACTORS:

There were 5 patients with moderate hypertension, 4 with diabetes (2 moderate, 2 mild), 2 with stable ischaemic heart disease and 2 with gross obesity. In addition, 1 patient was a treated case of PTB from Tan Tock Seng Hospital, 1 patient had an old stroke, while 1 other patient was in early chronic renal failure. The rest of the patients were in good health (18 cases).

TABLE I: SYMPTOMS

	<u>Cases</u>
Rt Hypochondrial Pain	19
Epigastric Discomfort	18
Vomitting	6
Nausea	5
Jaundice	5
Fever	5
Heartburn	1

SURGERY:

All patients underwent cholecystectomy. In 10 cases an exploration of the common bile duct was also required because of a pre-operative history of jaundice and fever or the operative findings of multiple small stones and/or a dilated common bile duct. In 2 of the latter, the additional procedure of a choledocho-intestinal bypass was done to prevent recurrent cholangitis.

RESULTS:

In 2 of the diabetic patients (both moderate diabetics aged 58 and the other 62), wound infection occurred postoperatively. In another patient aged 73, a right subphrenic abscess developed on the 7th postoperative day. There were no complications in the rest of the 31 cases.

The period of hospitalization ranged between 3 days to 28 days with a mean of 6 days. The patient who stayed for 28 days was the one with subphrenic abscess which required drainage. The average number of days of medical leave that each patient required before resuming work was 2 weeks.

DISCUSSION:

In optimal conditions, in a middle aged patient in average health, a cholecystectomy carries a smaller risk than a policy of wait and see. That good results can be expected in the average case referred for elective cholecystectomy are reflected in the results noted in this paper.

In general, the risks from surgery clearly rise with age and the presence of some intercurrent disease or the performance of duct exploration and choledocho-intestinal bypass. Our 73 years old patient developed a subphrenic abscess and this complication must necessarily be contributed by his advanced age and the performance of a choledocho-duodenostomy after duct exploration in this man. Wound infection after surgery is not unexpected in diabetics and we accept this complication in our 2 patients with moderate diabetes. Hansbrough & Eiseman (1980) have reported a 1% to 2% rate of wound infection and the very low figure of 0.5% incidence of subphrenic abscess. In comparison, our figures are 5.9% and 2.9% respectively but the striking difference may be due to the fact that our series is small.

With respect to the number of cases requiring duct exploration (29.4%) our series compare favourably with Maingot's figure of 30% (1957). Although 2 of our patients were aged 80, there is no mortality in our series of elective cholecystectomies. Others have reported mortality rates ranging between 1.3 to 2.5 percent when the patient is more than 70 years of age.

CONCLUSION:

Although reports have recently appeared in the literature about drugs that dissolve gallstones (Thistle, 1978), their real usefulness have not been proven. Until shown otherwise elective cholecystectomy remains the treatment of choice in patients discovered to have chronic cholecystitis with or without gallstones. Expectant management has its dangers & therefore is ill-advised.

With the greater availability of surgical skill today, the only contraindications for this surgery may possible be advancing years or severe intercurrent disease. The reduced expectation of life in these circumstances will probably weigh the scales against surgery.

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Male Erectile Impotence — A Surgical Approach

Dr Adam E Groeneveld MD PhD

Suite 10-05, Mount Elizabeth Medical Centre
Singapore 0922

Introduction

During the past ten to fifteen years important developments have taken place in the techniques of diagnosing and treating male erectile impotence. This condition is usually defined as the inability to achieve and/or maintain penile tumescence sufficiently to accomplish a coital connection successfully. Erections during sleep can now be registered, sex therapies are applied on a large scale and penile implants have been developed.

Physiology of erection

Erection may originate at two levels. 1. As a spinal reflex to exteroceptive and enteroceptive stimuli in the skin of the genitals and in the bladder and rectum. These stimuli travel via the pudendal nerve to an 'erection centre' located at S2—S4. Efferent stimuli travel via the parasympathetic nervi erigentes to the deep penile arteries, the dorsal penile artery and the arterioles in the corpora cavernosa. The actual erection is probably the result of an increased blood supply to the corpora cavernosa. 2. Erection may also be caused (and inhibited!) by psychogenic factors. Stimuli from fantasy or memory reach the thoracolumbar 'erection centre' in the spinal cord via the hypothalamus. From there sympathetic fibres run to the penis via the hypogastric plexus. Thus, parasympathetic as well as sympathetic pathways seem to play a part. The role of testosterone in this process is not entirely clear. Although testosterone is essential for the development and the maintaining of the primary and secondary sex features and for spermatogenesis, a correlation between sexual libido and the production of androgens in man is not very clear.

Pathogenesis

Erectile impotence is generally divided into organic and psychogenic impotence. Insufficient study has been done with regard to the prevalence of these respective groups. A proportion of the cases is probably caused by a mixture of psychogenic and organic factors. Interaction between these can easily develop, creating vicious circles.

Psychogenic factors in impotence

The factors mentioned below are not all necessary for impotence to occur but they can contribute to its development:

1. Anxiety, fear of libido and intercourse, fear to fail, fear to hurt and fear to be hurt.
2. Inhibitions instilled by parents and factors in the upbringing.
3. Conflicts of consciousness originating from religious factors, from adultery and in widowers.
4. Latent homosexuality.
5. Insufficient or wrong information.
6. Psychiatric diseases such as depression and psychosis.

Organic factors in impotence

These may be subdivided into several groups:

1. Local genital factors: phimosis, epispadias, hypospadias, short frenulum, induratio penis plastica (Peyronie's disease), posttraumatic scarring.
2. Postoperative factors: after sympathectomy, cystectomy, rectum amputation and other pelvic surgery.
3. Neurological causes: spinal cord lesions such as spina bifida, tumor and trauma. Multiple sclerosis, Parkinson's disease and other diseases of the central nervous system may also lead to impotence.
4. Toxic and medicine related factors: alcoholism, opium addiction, treatment with antihypertensives, anticholinergics and tranquillizers.
5. Other conditions such as renal insufficiency and haemodialysis, advanced liver disease, cardiac and pulmonary disease and malignancies may cause impotence.
6. Vascular diseases: hypertension, Leriche's syndrome, Buerger's disease, thrombosis of the vena dorsalis penis, thrombosis and arteriosclerosis of the pelvic blood vessels.

7. Endocrine diseases: diabetes mellitus, hypogonadism, hyperprolactinaemia, hyperthyroidism and others.

Clearly, in many of the above conditions, loss of libido rather than the physical impossibility of erection may play an important role. This makes a clear distinction between purely organic and purely psychogenic impotence sometimes difficult. In view of the surgical treatment however, it is important to establish whether or not the patient experiences libido.

Diagnosis

During the initial interview one wants to get an impression about previous and present diseases such as hypertension, diabetes, neurological conditions, trauma, previous surgery, hormonal treatment etc. More specific questioning can help to determine whether the impotence is organic or psychogenic in nature (Table 1).

Table 1: Differentiation of organic & psychogenic impotence

	Organic	Psychogenic
Onset	gradual*	sudden
Course	constant	varying
Immediate cause	no conflict	conflict
Influence of circumstances	always impotent	erections do occur under certain circumstances
Morning erections	absent	present
Masturbation	no erection	good erection

* not including impotence following trauma or surgery

A thorough physical examination is indicated in the impotent male, particularly in view of the psychosomatic interaction that may occur on the basis of some surgically treatable condition. With regard to the genitalia themselves, to be checked on inspection are the size of the penis, abnormal curves of the shaft, tumors, malformations, scar-tissue, location of the external urethral meatus, length of the frenulum, the presence of balanitis, smegma, phimosis and paraphimosis. On palpation Peyronie's plaques or asymmetrical corpora cavernosa may be found. The testes, epididymides and vasa should be checked for their number, size, consistency and sensitivity. Abnormalities in the scro-

tum may be palpated. The femoral arteries should be auscultated for murmurs. The tendon reflexes of the knees and ankles, the plantar and cremaster reflexes and the bulbocavernosus and anal reflexes should be checked. Rectal examination should include an evaluation of the prostate for size, symmetry, surface, consistency, hard or soft spots, pain. Some centres now employ Doppler sonography, pudenda arteriography and cavernosography to help establish vascular causes of impotence. In order to diagnose erections during the sleep an instrument designed on the principle of plethysmography was developed and is used in distinguishing between organic and psychogenic impotence. None of these tests are totally reliable and history and physical examination remain essential. Laboratory tests should include blood values of glucose, testosterone, FSH, LH and if possible prolactin and oestradiol.

Treatment

Once the impotence has been diagnosed as psychogenic, various psychotherapeutic and sexual methods of treatment are available. Discussion of these is outside the scope of this article.

Local anatomical abnormalities as discussed under Organic Factors In Impotence can be successfully dealt with by the appropriate surgical correction e.g. circumcision, chordectomy and frenuloplasty.

Penile prosthesis

Since Bogoras implanted a fragment of rib cartilage in the penis in 1936, there has been a remarkable development in penile prosthesis used for erectile impotence. As a result of this, two different techniques are currently in use. One of these is the inflatable penile prosthesis designed by Scott in 1973. This device attempts to imitate closely the normal physiological situation: two hollow cylinders are implanted in the corpora cavernosa and connected to a fluid containing reservoir that is placed under the rectus abdominis muscle. A hand operated pump is placed in the scrotum. The patient can pump these cylinders up until erection is established. A valve mechanism allows for maintaining the erection and detumescence when required. The other technique, advanced by Small in 1975, involves the implantation of a semirigid silicone rod in each corpus cavernosum leaving the penis in a constant state of stiffness. The early designs carried the cosmetic disadvantage of a visible bulge in the clothing. Subsequent improvements

however made the semirigid prosthesis more and more acceptable and successful. Finney described the 'hinged' prosthesis that allowed the penis to hang in a natural position by incorporating a segment of softer silicone in the rod at the level of the base of the penis. The latest development is the 'silicone silver prosthesis' described by Jonas in 1978. This is a semirigid silicone rod in which are embedded two twisted silver wires of 999.7 per mil purity. These wires allow the penis to be stabilized in the desired position i.e. in the intercourse position and in the urination and resting position. The advantage of the inflatable prosthesis is obviously the possibility of detumescence. However, the operation is more difficult and time consuming and complications such as failure of the valve or the tubing, infection and extrusion are described in up to 35% of the cases. The silicone silver prosthesis combines the advantages of the semirigid rod techniques (relatively simple procedure, virtually no complications, lower cost) with a good approximation of the physiological situation. Most reports describe excellent results with satisfied patients and their sexual partners. Complications of the semirigid rod implants occur in about 10% and are mainly infection and pain.

Indications. The most obvious indication for penile implant prosthesis is irreversible organic impotence with intact libido. These patients are mainly found among those with diabetes mellitus, hypertension, arteriosclerosis, spinal injuries, Peyronie's disease, after priapism and after pelvic sur-

gery. Psychogenic impotence may not be such a clear indication but as a last resort the operation is worthwhile considering. In some cases restored erectile power can be a crucial factor in the treatment of the psychiatric disorder.

Technique. A semicircular incision in the dorsal part of the sulcus coronarius is used to identify Buck's fascia and the tunica albuginea. The latter is then opened by a longitudinal incision between stay sutures. Dilatation of the corpora cavernosa is carried out down to the crura and distally under the glans up to 30 Fr. The prosthesis is then inserted, carefully avoiding any tension. Closure of the tunica and fascia is accomplished with absorbable sutures. The operation is done under the protection of antibiotics. Postoperatively a mildly compressive dressing is applied for three days. Intercourse may be permitted after 4 weeks.

Conclusion

Erectile impotence is often caused by organic factors such as local genital abnormalities or diseases of the vascular or nervous systems. Psychogenic factors may also cause impotence. Thorough history taking and physical examination are the most important tools in the differential diagnosis. Many cases of organic impotence can be cured surgically, either by correction of local genital abnormalities or by implantation of penile prosthesis. In psychogenic cases implantation may be considered if psychiatric treatment has failed.

The Solitary Thyroid Nodule

Dr P H C Lim MBBS, MMED (SURG),
Surgical Registrar,
&

Dr L B Tan MBBS,
Surgical Trainee,

Dept. of Surgery
Changi Hospital
Singapore 1750

INTRODUCTION:

When faced by a patient with a thyroid lump, the first question confronting the G.P. or Family Physician is whether it is benign, toxic or malignant. That the patient is hyperthyroid can easily be determined by eliciting the typical history and clinical signs of hyperthyroidism and confirming the clinical diagnosis by standard laboratory tests. Contemporary teaching then dictates whether the patient is treated medically or surgically. For the non-toxic goitre with suspicious palpatory findings, there should be no controversy that surgery is indicated. What is more difficult to decide is whether serious disease is present in a solitary thyroid nodule.

Currently, both radionuclide and ultrasonic scanning are being used to select which patients in this group warrant surgical intervention. However, these techniques have their limitations^{1,2} and closed biopsy by a drill or needle may give a misleading diagnosis because sufficient tissue is not gathered for the pathologist. The dangers of tumour implantation in the needle track are also real. In the final analysis the precise pathological nature of a thyroid nodule can only be obtained by open surgery. Hemithyroidectomy for the solitary thyroid nodule provides the tissue diagnosis and is usually sufficient treatment if the lesion is found to contain an occult malignancy. If obvious malignancy can be diagnosed at surgery, the correct cancer operation can be carried out. Perhaps, the most important benefit in this approach is that the patient is relieved of the worry and the lump.

This paper is a study of 80 patients with solitary thyroid nodules referred by their attending physicians to the Dept of Surgery, Changi Hospital between the years 1978-80. Specific

discussion on the management & results of treatment of these patients is the purpose of this communication.

CLINICAL MATERIAL & METHOD:

A total of 80 patients were referred for thyroid surgery when a solitary nodule was detected. Sixty-three were females and 17 males. The average age was 37.8 years with a range between 12 to 77 years. The racial composition was as follows: Chinese: 60, Malays: 13, Indians: 6, Eurasians: 1.

Presenting Symptoms: All complained of a lump in the neck. Associated dysphagia, dyspnoea or voice change were absent. The duration of the complaint ranged between 4 weeks to 4 years. None of the patients exhibited any signs or symptoms of thyrotoxicosis and the palpatory findings revealed a unilateral, smooth, firm thyroid nodule averaging 2.9 cm in diameter. 38 nodules were on the left side while 42 were on the right.

Investigations & Treatment: Other than tests to exclude a hypo- or hyper-thyroid state, in no instance was a thyroid radionuclide or ultrasonic scan ordered. All 80 patients were operated upon electively with a view to performing hemithyroidectomy.

RESULTS:

In 78 cases, a standard right or left hemithyroidectomy was carried out successfully. In 2 cases thyroid cancer was diagnosed at the time of surgery and total thyroidectomy was done for

clinically unequivocal carcinoma. No lymph nodes were found to be enlarged in these 2 cases and lymph node dissection was therefore not carried out. Thyroid hormone was given postoperatively because of the surgery & the histology of the tumour viz. follicular cell carcinoma.

In 2 of the 78 cases subjected to hemithyroidectomy, occult papillary cancer was noted by the pathologist in his report. The operation being adequate for this form of occult thyroid cancer, it remained but to give thyroxine post-operatively and follow up the patient for life.

The rest of the resected specimens revealed (Table I): 4 cases of Hashimoto's Disease, 4 cases multinodular goitre, 10 cases of colloid cyst, 16 cases of thyroid adenoma, 20 cases of colloid nodule and 22 cases of goitrous nodule.

TABLE I: HISTOLOGY REPORT

Carcinomas — overt follicular Ca	2
— occult papillary Ca	2
Hashimoto's Disease	4
Multinodular Goitre	4
Colloid Cyst	10
Thyroid Adenoma	16
Colloid Nodule	20
Goitrous Nodule	22

Complications: There was no mortality. Only 5 cases with relatively minor complications were reported postoperatively. These were (Table II): 3 cases of wound infection and 2 cases of subcutaneous haematoma formation.

TABLE II: COMPLICATIONS

MAJOR:	
Mortality	Nil
Unexpected Post-op. Myxoedema	Nil
MINOR:	
Wound infection	3
Haematoma	2

Follow-up: All the patients including the cancer cases are alive and well to date. However, 2 of the 4 cases of Hashimoto's Disease have since developed hypothyroidism (which is a natural sequel of this disease) and have received thyroxine therapy. Thyroxine, as replacement therapy was required

in the total thyroidectomy patients while the hormone was given as suppressant therapy for the occult cancer cases.

DISCUSSION:

This study demonstrates that the solitary nodule is the commonest problem of the thyroid gland encountered at our Dept of Surgery (Table III). The incidence of thyroid nodules in females is generally quoted as 6 to 7 times that in men.³ Our finding is that for every 1 male there are approx. 4 females (1:3.7) presenting with a solitary nodule. Also, Table III shows that no age was exempt once the first decade of childhood life has been completed.

The incidence of malignancy in solitary thyroid nodules is between 6 to 12% in most series.⁴ In this series the incidence was 5% (4/80). Thus physicians must recognise the need for early referral of all patients with a solitary thyroid nodule. This need becomes even greater if the patient is a male since 3 of the 4 patients later

TABLE III: AGE DISTRIBUTION

Age range	Number of cases
11-20	12
21-30	17
31-40	19
41-50	11
51-60	12
61 & above	9

confirmed to have thyroid cancer in our series were males. This finding is in keeping with the widely known fact that a solitary nodule in a male is more likely to be malignant than in a female.

Does surgical management by hemithyroidectomy pose any great risk for the patient? This can best be answered by reference to the fact that the mortality of thyroid surgery for a nodule should be only that of the anaesthesia. Some authors⁵ have reported morbidity ranging from recurrent nerve injury of <0.1%, myxoedema <1.0%, tetany <0.1% and wound infection <0.1%. There was no mortality in our series. The only forms of morbidity noted were: wound infection 3.8% and subcut. haematoma 2.5%, which we feel is a little high and can be improved by better operative technique. The cases of postoperative myxoedema in this series is directly attributable to the pathology (cancer & Hashimoto's Disease) and is therefore not related to the surgery per se.

**TABLE IV: OTHER THYROID CONDITIONS
TREATED OVER THE PERIOD 1978-1980**

Thyrotoxicosis	18
Multinodular goitre	6
Obvious Carcinoma	3
Thyroglossal Cyst	4
total	31
c.f. solitary nodules	80

CONCLUSION:

Solitary thyroid nodules should be considered malignant until proved benign. They carry a risk of malignancy of 5% and therefore should be removed by hemithyroidectomy the only exceptions being those arising during pregnancy and in those unfit for anaesthesia. The mortality and morbidity for this form of thyroid surgery being negligible,

there is little justification for expectant management in current surgical practice.

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ACKNOWLEDGEMENT:

The authors thank Mr P N Unni, Senior Surgeon & Head of the Dept of Surgery, Changi Hospital, for his invaluable help during the preparation of this paper.

Haematology for Family Physicians*

Dr Y W Ong FRCPE

Senior Consultant Haematologist
Blood Transfusion Service
Singapore General Hospital
Singapore 0316.

INVESTIGATORY APPROACH TO THE PROBLEM OF ANAEMIA

Anaemia

A common clinical problem seen in family practice. Investigatory approach should take into consideration the following points:

Definition:

Fall in haemoglobin level in relation to age and sex of patients.

Adult Normal Values:

Male 13.0 – 18.0 gm/dl

Female 11.5 – 16.5 gm/dl

For blood donations, minimal acceptable level of haemoglobin is 12.5 gm/dl for males and 12.0 gm/dl for females.

I. What is the cause of Anaemia?

Anaemia is **not** a disease, it is a symptom. Look for the underlying disorder causing the anaemia.

Morphological type of anaemia often gives a clue to underlying cause. RBC morphology; MCV and MCHC are used to classify morphological types of anaemia – e.g. hypochromic microcytic; normochromic normocytic; macrocytic anaemias.

II. Mechanisms which produce Anaemia

1. Blood loss – most common cause of anaemia
 - Acute
 - Chronic
2. Failure of RBC production
 - Lack of substances essential to erythropoiesis viz Iron, Vit B₁₂ and Folic Acid.
 - Associated with systemic disease e.g. liver disease, renal disease, endocrine disorder, collagen diseases, infection (Symptomatic Anaemia)

- Marrow failure e.g. Aplastic Anaemia, Leukaemia, Myeloma, Secondary Carcinoma; Myelofibrosis etc.

3. Reduced RBC life span (Haemolytic Anaemias)

- Intracorporeal defects
- Extra corporeal defects

Clinical Aspects

Take a careful history and make a thorough physical examination.

Points to note in history include the following: rate of onset, blood loss, diet, dysphagia, anorexia, weight loss, bowel habits, drugs e.g. aspirin, family history of anaemia and infection.

Physical Findings

Look for evidence of koilonychia, bleeding into skin and mucous membranes, jaundice, lymphadenopathy, hepatosplenomegaly, congestive cardiac failure, fundal haemorrhages and peripheral neuropathy.

Investigations

Start with simple screening procedures:–

Blood counts, peripheral blood picture. Check Serum Iron, Vitamin B₁₂ and Folic Acid levels. Urinalysis. Stools – ova, occult blood.

Bone marrow examination to confirm diagnosis of megaloblastic anaemia or to further elucidate cause of anaemia.

Investigations for haemolytic anaemia include osmotic fragility; estimation of G6PD; Hb electrophoresis; Direct Coomb's Test; Radioactive Chromium 51 RBC survival studies.

* Lecture delivered at the In-Depth Course in Minor/Ultra Specialities in Family Medicine, on Friday, 4 September 1981.

General Principles of Management

1. Treat underlying disorder. Important to arrest any source of blood loss.
2. Administer specific haematinics. Requires accurate assessment of type of anaemia as shown by blood examination.
3. Supportive treatment
 - adequate diet; correct deficiencies
 - bed rest
 - digitalis and diuretics for heart failure
 - blood transfusions to be used judiciously

Use of Haematinics

1. Specific factor lacking should be given alone after adequate investigation to establish cause of anaemia.
2. Avoid "shotgun" preparations; may obscure diagnosis and create difficulties in later assessment of response.
Administration of Folic Acid to patients with Vit B₁₂ deficiency states may precipitate serious neurological complications viz sub-acute combined degeneration of spinal cord.
3. Treatment should be in adequate doses for a sufficient length of time.

IRON DEFICIENCY ANAEMIA

Iron Metabolism

Iron is distributed in the body in several distinct forms:—

- (i) Haemoglobin iron
:— 1.5 — 3 gm
- (ii) Storage iron—
:— available 1.2 — 2 gm
:— non available — 0.3 gm (muscles and iron containing enzymes)
- (iii) Plasma iron (transport)
:— 3 — 4 gm

Total body iron varies with sex and size:— 3 — 5 gm

Iron deficiency develops in 2 stages:

- (i) Progressive depletion and exhaustion of body iron stores.
- (ii) Development of anaemia.

Iron Therapy

Iron can be given — orally
— parenterally — I/M; I/V

Majority of patients respond to oral iron therapy. Use simple inorganic iron preparations as first choice e.g. Ferrous sulphate, cheap; tolerated by majority of patients. Organic iron salts more expensive — indicated when there is intolerance to Ferrous sulphate.

Average Dose: 1 tablet (60 mgm elemental iron) tds.

Danger: Keep tablets away from children. Sugar coated tablets may be mistaken for sweets. Acute iron poisoning may be fatal.

Parenteral Iron

Indications:

1. Intolerance to oral iron preparations.
2. Inability to absorb iron.
3. Where rapid build up of Hb is required e.g. pre-operatively; late pregnancy.

Total Dose Infusions (TDI)

1. Check that iron preparation is suitable for intravenous use.
2. Iron dose must be suitably diluted and administered as a very slow infusion. Keep patient closely monitored. Have resuscitation facilities available.
3. Must be off oral iron for at least 2 weeks prior to TDI.

Side effects:

- (i) Mild flushing.
- (ii) Thrombophlebitis.
- (iii) Rarely severe anaphylaxis.

MEGALOBLASTIC ANAEMIA

Due to lack of either Folic Acid or Vitamin B₁₂.

Peripheral Blood Picture: Macrocytic RBC; presence of hypersegmented polymorphs; associated leucopenia and thrombocytopenia especially in severe anaemia.

Bone marrow morphology: Characteristic megaloblastic erythropoiesis.

Special tests in diagnosis: Serum assays of Vitamin B₁₂ and Folate levels — microbiological assays or radioisotope techniques.

(i) Folate Deficiency

Factors causing Folate deficiency:

1. Inadequate dietary intake; loss through cooking.
2. Increased demands
 - pregnancy
 - infancy, childhood
 - chronic hemolysis
3. Malabsorption
 - sprue, coeliac disease
4. Alcoholism
 - common cause folate deficiency

5. Drugs

- anti-convulsants, Methotrexate, Pyrimethamine, Trimethoprim

Clinical manifestations:

- macrocytic megaloblastic anaemia
- glossitis
- diarrhoea
- anorexia

Treatment: Generally oral Folic Acid 5 mgm daily.

(ii) Vitamin B₁₂ Deficiency

Factors causing Vitamin B₁₂ deficiency:

1. Nutritional.
2. Impaired absorption
 - Pernicious Anaemia
 - Gastrectomy (total or partial)
3. Intestinal causes
 - lesions of small bowel — strictures, anastomosis, blind loop syndrome, fistula, regional ileitis.
 - Fish tapeworm infestation.

Mechanisms:

1. Lack of Intrinsic Factor.
2. Impairment of absorption by intestinal mucosa.
3. Interference with absorption by bacteria and parasites.

PERNICIOUS ANAEMIA (PA)

Described by Addison in 1855. Rarely seen in Singapore. Lack of Intrinsic Factor due to gastric atrophy results in Vitamin B₁₂ deficiency.

Genetic basis:

10% of patients have family history. Seen most commonly in North Europeans.

Autoimmune factors:

Frequently associated with other autoimmune disorders. 50-70% PA patients have Intrinsic Factor antibodies. 85% of patients have gastric parietal cell antibodies.

Clinical features:

Macrocytic megaloblastic anaemia, glossitis and nervous system involvement; may be combined in varying degrees of severity. Disorder of middle and older age groups. Uncommon below 40 years.

Diagnosis:

Clinical picture; neurological signs especially involvement of peripheral nerves and lesions of posterior columns.

Blood and bone marrow findings.

Histamine/pentagastrin fast achlorhydria.

Low Serum Vitamin B₁₂.

Characteristic radioactive Vitamin B₁₂ absorption test (Schilling Test).

Presence of Intrinsic Factor and parietal cell antibodies.

Reticulocyte response to treatment with Vitamin B₁₂.

Usual Therapeutic Dose 1000 ug/m per month Vitamin B₁₂ subcutaneously.

SYMPTOMATIC ANAEMIAS

Common type of anaemia seen in systemic disorders. In Symptomatic Anaemias improvement depends on extent of response to treatment of the systemic disorder.

1 Anaemia of Infection

Frequent with chronic infections e.g. TB. Anaemia usually mild. Associated with low Serum Iron, reduced TIBC. Marrow iron stores normal or increased. May produce sub-optimal response to treatment of associated iron, Vitamin B₁₂ or Folate deficiency.

2 Anaemia Associated with Chronic Renal Disease

Anaemia always seen in chronic renal failure. Multi-factorial

- depression of erythropoiesis
- increased RBC destruction
- complicating infection
- blood loss
- microangiopathy

3 Anaemia of Chronic Liver Disease

Anaemia common, especially in liver cirrhosis. Moderate to severe degree.

Factors causing anaemia:

1. Liver disease per se
2. Blood Loss
3. Folate Deficiency
4. Hypersplenism

4 Anaemia associated with Collagen Disorders

Anaemia common in Rheumatoid Arthritis, SLE.

In RA — anaemia may be severe
— aggravated by blood loss due to medication with salicylates
— aplastic anaemia due to drug therapy — phenylbutazone; gold salts

SLE — anaemia may be associated with Thrombocytopenia
— Autoimmune Haemolytic Anaemia with positive Direct Coomb's Test

5 Anaemia Associated with Malignancy

Often found in malignant disorders.

Contributory factors

- blood loss
- infection
- bone marrow failure due to metastasis
- increased RBC destruction
- myelosuppressive effects of treatment

Patients with Anaemia may have associated leucopenia and thrombocytopenia which need investigation.

Causes of Pancytopenia

1. Aplastic Anaemia
2. Myelodysplastic syndromes
3. Bone marrow infiltration e.g. Leukaemia,

Lymphoma, Myeloma, Myelofibrosis, Carcinoma

4. Megaloblastic Anaemia
5. SLE
6. Disseminated TB (rare)
7. Hypersplenism

Reading List

- G C De Gruchy:
Clinical Haematology in Medical Practice 4th Edition Blackwell Scientific Publications
- J V Dacie & S M Lewis:
Practical Haematology. 5th Edition Churchill Livingstone
- A V Hoffbrand:
Megaloblastic Anaemia, Clinics in Haematology 6:3; October 1976.

First of a series featuring Sister Colleges' Journals/Publications

The New Zealand Family Physician

The New Zealand Family Physician is the official Journal of the Royal New Zealand College of General Practitioners. It is published quarterly and appeared first in March 1974 under the foundation editorship of Dr David Cook. The present Editor, Dr Ian St George, took over in 1980.

The emblem of the R.N.Z.C.G.P. appears on the cover. It was designed by Guy Ngan, a New Zealand artist of Chinese extraction. It is made up of elements that symbolise aims and qualities important to the family doctor.

The owl represents wisdom and vigilance. It holds the gavel of authority, entwined by the serpent of medical knowledge. It is derived from the crest of the Achievement of Arms of the Royal College of General Practitioners.

The ancient symbols beneath the owl had a mystical and scientific tradition in Europe before the Dark Ages. The upright stroke is man, the triangle woman. The circle within the triangle signifies child bearing, and with the additional circles, the whole central escutcheon denotes the family, whose health is the concern of the family doctor.

The patterns to each side are from ta'aniko, the creative art of Maori weaving. The triangular aonui motif had a sociological significance now forgotten, but it was traditionally used to trim the edges of flax cloaks. The R.N.Z.C.G.P. gown, worn on academic and ceremonial occasions, is trimmed with panels of a similar design.

The motto, "Cum Scientia Caritas" means

THE NEW ZEALAND FAMILY PHYSICIAN



The Journal of the New Zealand
College of General Practitioners

Vol. 6

No. 2

June 1979

"with knowledge and compassion."

The colour is Coates' Chinese Orange. This is reminiscent of the red ochre used by the Maori cave painter and sculptor.

Information was kindly supplied by the Editor of The New Zealand Family Physician, Dr Ian M St George.

- The present format of the New Zealand Family Physician differs somewhat from that shown in the above photograph which is intended to capture the very distinctive logo with its symbolically rich socio-cultural meanings.

Ed.

NEWS FROM THE COUNCIL

Tenth WONCA World Conference on Family Medicine

The President of the Republic of Singapore, Mr C V Devan Nair, has graciously consented to attend as Guest of Honour the Opening Ceremony of the Tenth WONCA World Conference on Family Medicine, to be held at the Mandarin Hotel, Singapore, from Friday, May 20 to Tuesday, May 24, 1983.

The Council of the College appeals to every member to participate in this Conference. We need all the help you can give to make the Conference an outstanding success.

PLEASE REGISTER EARLY TO GIVE US YOUR MORAL AND FINANCIAL SUPPORT.

THE Fifth Sreenivasan Oration and Eighth College Convocation and Annual Dinner

This year the Fifth Sreenivasan Oration & Eighth College Convocation and Annual Dinner will be held at the Mandarin Hotel Ballroom, Singapore on Monday, November 15, 1982 (Public Holiday), at 7.00 p.m.

Dr Wes E Fabb, Honorary Fellow of our College, and Director of Family Medicine Programme of Australia will deliver the Sreenivasan Oration.

PLEASE KEEP THE DATE FREE TO ATTEND THIS IMPORTANT FUNCTION OF THE COLLEGE.

The Fifth Meeting of the Japan Medical Society of Primary Care

Dr Alfred W T Loh and Dr Lim Kim Leong, Chairman and Honorary Secretary of the Host Organising Committee, Tenth WONCA World Conference on Family Medicine respectively, attended the Fifth Meeting of the Japan Medical Society of Primary Care held in Kokura, Japan from June 12 to 14, 1982. The doctors in Japan are keen to attend the Tenth WONCA World Conference on Family Medicine to be held in Singapore from May 20 to 24, 1983. They have applied for Membership of WONCA.

Indonesian Family Physicians Foundation First Scientific Meeting

Dr Frederick Samuel, Vice President of our College was invited to give a talk on "The Development of General Practitioners as a specialty in Singapore" by the Indonesian Family Physicians

Foundation at their First Scientific Meeting held in Jakarta from June 19 to 21, 1982. The Indonesian doctors are also keen in attending the Tenth WONCA World Conference on Family Medicine in May 1983, and the Foundation has applied for Membership to WONCA.

Clinical Teachers in Family Medicine/General Practice

The Undergraduate Teaching Unit would like to place on record its sincere thanks and gratitude to the following Clinical Teachers in Family Medicine/General Practice who unselfishly volunteered to take medical undergraduates into their Clinics for the students' posting in Family Medicine/General Practice 1981/82:

Dr Chan Swee Mong, Paul
Dr Chang Ming Yu, James
Dr Chiong Peck Koon, Gabriel
Dr Chong Tong Mun
Dr Chow Yeow Ming
Dr Chua Sui Leng
Dr Goh King Hua
Dr Ho Gien Chiew
Dr Koh Eng Kheng
Dr Koh Kim Chan
Dr Kong Kum Leng
Dr Lee Suan Yew
Dr Leong Chee Lum
Dr Lim Chan Yong
Dr Lim Chong Sing
Dr Lim Chun Choon
Dr Lim Kim Leong
Dr Lim Lean Huat
Dr Loh Wee Tiong, Alfred
Dr Loo Choon Yong
Dr Samuel, Frederick
Dr Soh Cheow Beng
Dr Tan Hoi Hwa
Dr Moti H Vaswani
Dr Wee Sip Leong, Victor
Dr Yeo Peng Hock, Henry

The College Council at its 15th meeting, held on 14 July 1982 decided to exempt the Clinical Teachers in Family Medicine/General Practice from registration fees for the College's Continuing Medical Education courses for the year 1983, as a token of its appreciation.

MEDICAL NEWS

HISTAMINE H₂-ANTAGONISTS RESEARCH AND CHEMICAL DEVELOPMENT

The definitive work of Black and his colleagues at SK&F in 1972 provided the spur to seek alternative and improved histamine H₂-antagonists for treating peptic acid disease. This work was important in two respects. It provided evidence for two distinct types of histamine receptors, termed H₁ and H₂-receptors, and also demonstrated for the first time a clear physiological role for histamine, namely, the control of gastric acid secretion. The histamine receptors controlling the release of acid from the parietal cells (acid secreting cells) in the stomach are of the H₂-type and the consequence of H₂-receptor blockade by drugs is, therefore, a reduction in gastric acid secretion.

The therapeutic end result, as shown by many controlled clinical studies in patients with duodenal or gastric ulcers, is that histamine H₂-antagonists are undoubtedly the most effective drugs available today for relieving ulcer pain and allowing ulcers to heal.

Selectivity Need

The first H₂-antagonists, burimamide, metiamide and cimetidine, which are substituted imidazoles, were developed by modifying the chemical structure of histamine. Cimetidine was the first H₂-antagonist to be widely used in man. Although the blocking action of cimetidine at H₂-receptors is highly specific by comparison with its action at H₁-receptors, this drug binds at other sites in the body and some of these interactions are clinically important.

Researchers sought a more selectively acting histamine H₂-antagonist which would specifically bind to H₂-receptors in the stomach. They prepared and tested many alternatives to the earlier compounds based on an imidazole ring with flexible chain. Investigations with substituted furans led to the nitrovinyl derivative, now known as ranitidine, which was chosen for development because of its exceptionally selective action and corresponding lack of toxicity.

Ranitidine is a potent, competitive H₂-antagonist. It is five to ten times more potent than cimetidine. It is well absorbed following oral administration and is highly effective in inhibiting

gastric acid secretion induced by various secretory stimuli including food. It is somewhat longer acting than cimetidine.

Ranitidine also proved to have the necessary selectivity of action to be a genuinely improved drug. Most importantly it was shown that:

1. Ranitidine does not inactivate the cytochrome P450 mixed function oxygenase enzyme system in the liver causing interference with the actions of drugs which are normally processed by this enzyme (e.g. propranolol, diazepam, theophylline and warfarin).
2. Ranitidine does not bind to androgen receptors which can lead to anti-androgenic effects such as gynaecomastia and sexual dysfunction in the male.
3. Ranitidine does not, in high doses (400 times the anti-secretory dose), cause behavioural effects in animals, nor does it cause changes in the pharmacological effects of centrally active drugs. There have been no adverse effects such as mental confusion in the elderly as has been reported with earlier H₂-antagonists.
4. Ranitidine does not activate peripheral blood lymphocytes. This result again emphasises the exceptional selectivity of action of ranitidine.

SCIENCEWATCH

What's brewing?

In 1979, a doctor at the University of Connecticut reported his discovery that lemon tea erodes polystyrene cups.

Though no polystyrene could actually be detected in the lemon tea, it was alarming to see it being eroded from the cups, because of an earlier report that cancer had resulted when polystyrene was injected under the skins of mice (polystyrene is completely insoluble in water or in tea without lemon).

It was no particular consolation that the cups gained weight rather than lost it, because who could know what chemical reactions might be going on in the brew?

Last week, in a letter to the New England Journal of Medicine, a food scientist at Arizona

State University said he had found where the eroded polystyrene goes.

Mr Woodrow C. Monte wrote that he too had not found any polystyrene in the lemon tea. But he had added polystyrene dissolved in lemon oil to ordinary tea in polystyrene cups, and found that the polystyrene actually disappears from the solution.

Using polystyrene tagged by including radioactive carbon in its molecular structure, Mr Monte found that the dissolved polystyrene sticks firmly to the walls of the container. After 20 minutes, up to 98 per cent of the polystyrene experimentally introduced is found on the cup, which is apparently acting as an absorbent for its solvent, the lemon oil.

Manics' choice

Manic patients appear to have a different perception of emotional aspects of music, according to a study by Drs Nielzen and Cesarec of the department of psychiatry, University Hospital, Lund, Sweden.

A piece of music was played at a slow and fast tempo to 10 manic patients and 20 normal controls. The slow piece was interpreted as relaxed, very gay and attractive by normal subjects, but as less gay and attractive by the manics.

However, the manic patients rated the faster piece of music as more gay and attractive than the controls, who experienced more tension at this tempo.

The authors conclude that manics prefer a higher musical tempo and that their different perception of the emotional content of music may be important in the pathophysiology of mania. (*Acta Psychiat Scand* 1982, 62, p.81).

Gastric secretions erode safety-razor blades

Magicians who gulp down razor blades won't seem nearly as impressive, now that a Californian doctor has discovered that gastric juice can be an effective digester of a Gillette Platinum Plus blade.

Dr David Hatoff works at San Diego University, and noted that mentally ill patients often swallow foreign bodies — including razor blades — which are difficult to remove by endoscopy. In three such cases, where endoscopic removal was delayed or impossible, Dr Hatoff made these interesting observations:

- A 24-year-old schizophrenic had swallowed a razor blade padded with bread, but permission was only obtained to conduct a fibre-optic endoscopy on the eighth day thereafter. Corroded fragments of blade were found in the stomach, but they crumbled when grasped. The patient recovered uneventfully — and varied his diet by subsequently eating fluorescent light bulbs.

- A second 24-year-old schizophrenic swallowed two razor blade halves. One was removed using an endoscope with a protective sheath; and, with the aid of a high bulk diet, the other piece passed per rectum in five days.

- The third patient, a 34-year-old with a character disorder, swallowed half a razor blade, which eventually passed through the GI tract because he refused endoscopy.

In the light of these three patients, Dr Hatoff concluded not only that the immediate removal of razor blades is not mandatory but also that gastric secretions may even destroy the blades.

Dr Hatoff concludes that if an x-ray shows that the blade is in the stomach and if no complications are evident, perhaps noninvasive management should be considered — with the patient positioned on his left side to keep the blade away from the duodenum, and whilst withholding antacids.

When x-rays indicate that the blade has left the stomach or has broken up, the patient could be given a high-residue, high-fibre diet.

Whether the "gastric juice test" could be used as a consumer standard for the durability of razor blades, Dr Hatoff doesn't say. (*Lancet* 1982, i, April 24, p.959).

Cough mixture abuse causes paranoia

Paranoid psychoses are well recognised complications of LSD, amphetamine and ephedrine abuse, and a Glasgow doctor has just reported the first case of psychotic symptoms following the use of pseudoephedrine.

A 27-year-old man presented to the Glasgow Southern General Hospital with acute psychotic symptoms. He had a six-year history of affective disorder which stabilised after treatment with lithium. So when he described a 10-day history of vibrations in his body, auditory hallucinations and feelings of being spied on, the diagnosis was in doubt and trifluoperazine was added to the lithium therapy.

Paranoid symptoms settled, and on follow-up 10 days later he admitted to having abused the cough mixture Actifed for many years, taking one or two bottles at weekends to help him relax. He also found that it caused pleasant perceptual changes (sounds seemed louder and colours more vivid).

Two weeks before presentation, he had increased this intake to two bottles a day. The hallucinations disappeared the day after he stopped taking Actifed.

Dr Katherine Leighton — who reported the case — believes that routine questioning on abuse of Actifed may be appropriate in new cases of paranoid illness, and also for known psychiatric patients in whom the condition is likely to be misdiagnosed (*BMJ* 1982, March 13, p.789)



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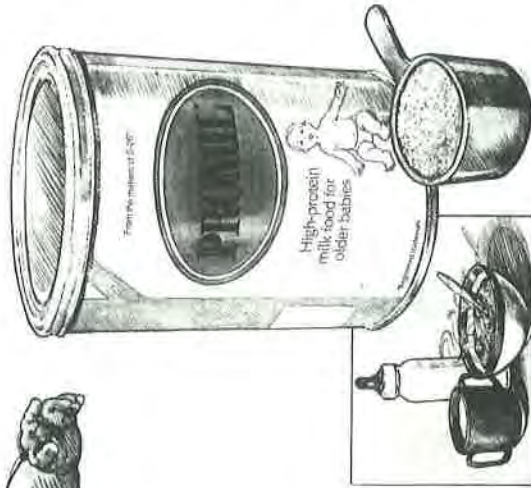
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Tenth Wonca World Conference on Family Medicine.



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The College of General Practitioners Singapore will host the Tenth WONCA World Conference on Family Medicine. The Organising Committee takes great pleasure in inviting all Family Physicians/General Practitioners to this excellent opportunity to meet your colleagues from other parts of the world and to exchange and discuss views and ideas on Family Practice.

An extensive varied programme has been planned. The Scientific Programme will include plenary sessions and workshops on

- * the clinical aspects of
- * research in
- * education for, and
- * future health care in

Family Practice, besides free-paper sessions on different subjects.

Besides the Opening Reception and Closing Banquet for all registrants, all accompanying physicians' spouses and children will be treated to a separate comprehensive, social programme to give them an insight into our rich multi-cultural heritage and an opportunity to pick up bargains in the shopper's paradise that is Singapore.

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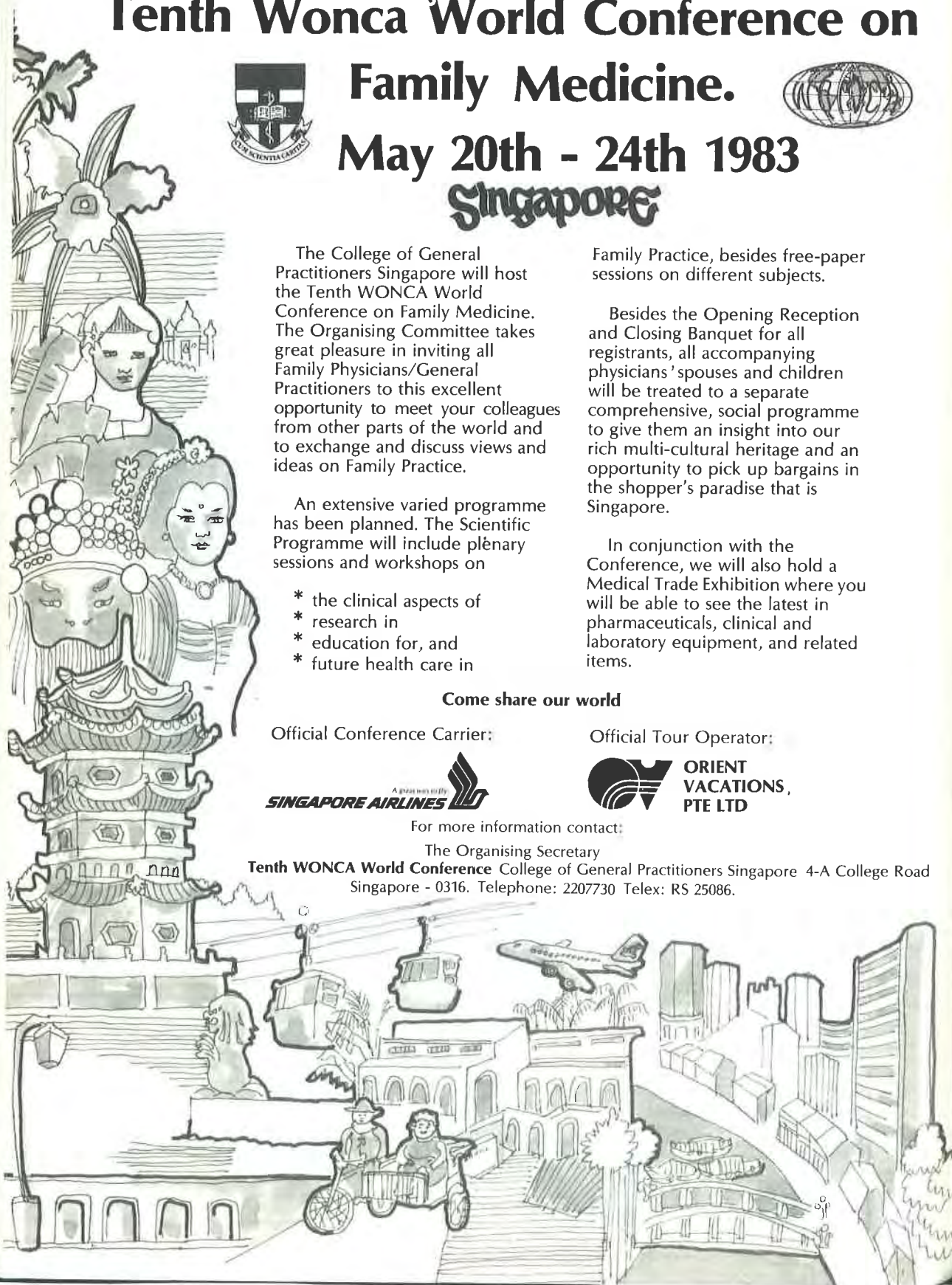
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