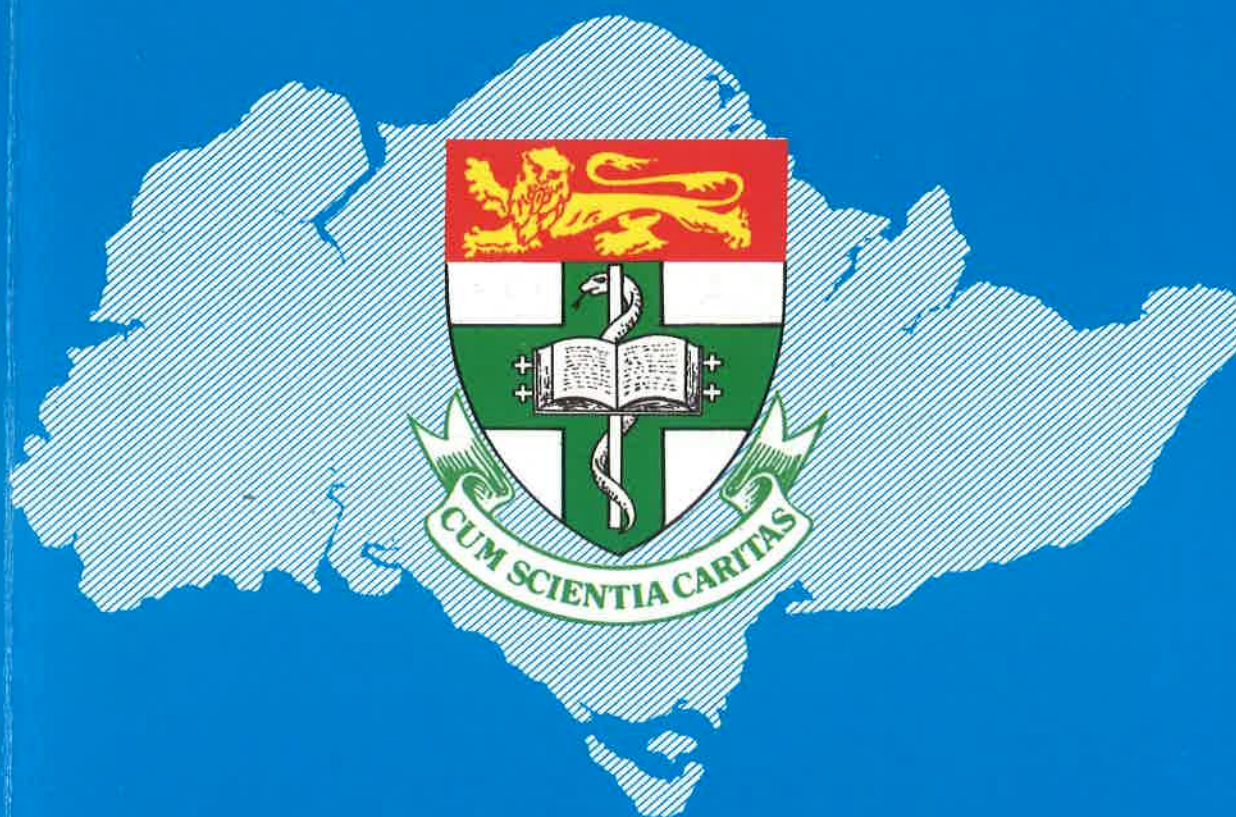


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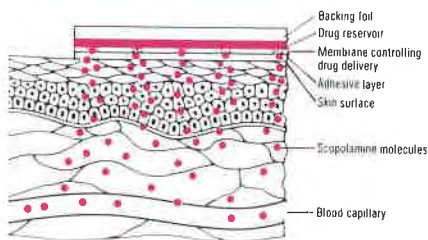
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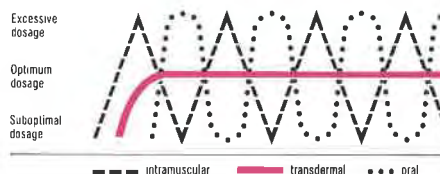
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C I B A

EDITORIAL

FAMILY MEDICINE ASPECTS OF THE "NEW" POPULATION POLICY

On 1st March 1987 the First Deputy Prime Minister announced what was termed Singapore's "New" Population Policy. From the question and answer session that followed the policy speech, it soon became apparent that the word "new" referred only to the ways to achieve the fundamental objective rather than a change in the objective itself. The fundamental objective remains unchanged. Singapore is still targetting to achieve replacement population level and not an increase in real terms.

The Off-Target Trend

The figures and tables shown revealed that if the present trend of birthrates were to continue uncorrected the target of zero population growth would not be achieved. The projection showed that it would indeed turn into a minus population growth. A chart comparing the fertility rate of the three major ethnic composition of Singapore showed that whilst the Malay and Indian citizens were replacing themselves, the Chinese citizens were under-achievers in terms of replacing themselves. More and more Chinese women of marriageable age in the secondary and tertiary educational groups have chosen to remain single. The rate of replacement was 1.5 children per Chinese couple when the target should have been similar to what was achieved by the other two major ethnic groups i.e. 2 per family.

Major objectives whether economic, social, educational, medical or populational have to be evaluated periodically and corrected when off target. Hence the need to swing the population trend slightly upwards by remedial measures. This is a perfectly logical necessity. Parents who heeded the previous population slogan or measure to "stop at two" should not feel that they have lost out or that anything is amiss now that incentives are given to induce them to "proceed to three". When the population target is overshot in time to come, adjust-

ments will have to be made to reverse the deviant trend. Hence no promise that the present policy will continue to hold for good can be made.

The nation's population policy and population trends are of concern to Family Physicians. Some of the "new" measures announced have impact on their practices. Some of the more obvious medical and social aspects require their attention.

The Single-child Family

There is no gainsaying that families in Singapore are getting smaller in terms of children. A 4-children family, a norm of yesteryear, has become the exception in present day Singapore. The statistical revelation of a 1.5 children family implies that many families in Singapore today are in reality single-child families.

The psycho-social implications of single-child families have yet to be studied and felt. Purely on a-priori grounds they do not seem healthy.

A single child in a family has no sibling rivalry in the home. Fair competition simply does not exist. He is lord of all. He is not required to learn the basic rules or the fair terms of competition. He does not need to share in the love of his parents, share in the resources of money, food and time. No demands are made on him to show concern to his siblings. He does not know what it is to look after an ill brother/sister with the attendant anxieties. He is not required to give or take. Shielded and protected from problems and pressures he is less likely to make the right responses when he attains adulthood and have to face them independently. He does not grow in relationship.

The relationship of a single child in the situation where both his parents are themselves singles implies that he will never know

what it is to be related to an "aunt" or an "uncle" (for better or for worse).

Medical leave for child's illness

In the past it was unheard of to grant leave to the mother just because her child was ill. The new package of incentives to encourage mothers to have more than 2 children now recognises that a mother is entitled to leave of absence from work when her child is ill. She is entitled to 15 days per year of "sick child leave". This recognition is long overdue and reflects a sensitivity to the importance of the mother-child relationship especially during an episode of illness. This principle of granting leave should enjoy perpetuity in an enlightened society.

The words of George Eliot below demand our close attention.

*A child forsaken, waking suddenly,
Whose gaze afeard on all things round
doth rove,
And seeth only that it cannot see
The meeting eyes of love.*

I do not know how mothers have managed to cope with the problem of a sick child in the past. Mother-substitutes? Perhaps they have had the connivance of their superior officers to obtain "french leave" for such contingencies. Both leave-takers and leave-granters now need feel no guilt about such leave of absence anymore.

Most family physicians can sigh with relief now that such pressures on them for medical certificates have been lifted.

Elderly Mothers

Family physicians should be prepared to give genetic counselling to elderly mothers who might find it "attractive" to have a third child because of the generous tax incentives. The anticipated "bundle of joy" can turn out to be a disappointing "bundle of Down's defects". Genetic surveillance of pregnancy is certainly not out of place when required.

The increased maternal and child morbidity risks associated with elderly mothers should be faced squarely by those who are adamant to have their third or fourth child after a lapse of ceased procreative activities.

Ligated Mothers/Fathers

The government may want to extend the services of her obstetric/gynaecology departments to offer the present state of technological know-how on fertilisation to enable those who had "stopped at 2" to "proceed to 3". Reversal of ligation is a fruitful field of research that is clearly devoid of ethical and moral considerations. The fact that the successful rate is small should not be cited as a deterrent. This is a small price to pay for citizens who have patriotically responded to the previous population objective of stopping at 2 children.

Abortion/Adoption

The policy of facilitated abortion adopted in the past should now be re-examined in the context of the need to encourage mothers to "proceed to three". As a measure to curb population growth it has not been successful at all. There are sufficient numbers of caring and concerned Singapore citizens to adopt every unwanted child. With minimal effort and expenditure on the part of the government, the joy of having children in these homes becomes a reality.

Extended No-Pay Leave for Mothers

The granting of no-pay leave for female civil servants who have recognised lengths of service for a maximum period of 4 years to care for their third child is a bold and enlightened move. It takes into consideration the crucial period of the formative years of a child's life to effect "bonds" of great psychological importance in the mother-child relationship. This concession does not need to be confined solely to the immediate measures to encourage procreativity.

Affordability

It has been said that the number of children a couple want should be based on "affordability". The word "affordability" when used in the context of begetting children is at best ambivalent. Used solely in money terms it then behoves those with an income of \$XY,000 per mensem to have (XY) x 2 children on the assumption that 2 children is the norm for a parental income of \$1,000 per mensem. The top echelon of our citizens in politics, in civil service, in commerce and industry, in the professions and other spheres

of economic activities have failed miserably when "affordability" is computed in money terms.

Size of family

The number of children parents want to have should not be dictated by financial inducements but by a genuine desire to have children who are loved for themselves and not for "tax deduction" considerations. Tax deductions are attractive perks. However they should not overshadow the decision of parents to have the desired number of children they genuinely want.

The most discerning response to the "new" population policy came from one of the younger government ministers. His words quoted by his press secretary in the Straits Times on 4th March 1987 were: "The Government naturally hopes to remove some obstacles in order to encourage parents to have more children. But if parents bear more children simply for the sake of the policy, they will not make good parents because then they will not be bringing up the children for themselves, but as a duty to the state. This is not a good idea."

What Singapore Needs

Singapore needs "strong families" if she wants to remain a strong and healthy nation. Strong families do not simply come about. Every and any effort made by government or non-government agencies to promote family health will pay dividends far exceeding any incentives that the "new" population policy can ever give. The numerical basis of strong families is certainly not the single-child family.

Strong families are recognised as families where the members are committed to one another in love, have time to share together, have established effective communication patterns one with another, value and appreciate each member's role and function, share a common spiritual bond and are able collectively to resolve problems and pressures in a crisis.

Let us not mistake the image for the real thing. Population is the image. The real thing is the strong family.

LVC

DIABETES IN PREGNANCY

Dr S Balasingam
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INTRODUCTION

Over the last few decades it has been established that the optimal therapeutic regimen achieving near normalisation of blood sugar levels before and during pregnancy in the diabetic patient reduces the incidence of perinatal mortality and morbidity comparable to the general population. Prior to the advent of insulin, pregnancy was a rare event in the diabetic mother, and in the rare circumstances where pregnancy occurred maternal survival was placed in jeopardy. Today however maternal survival should not be threatened unless there is advanced renal disease, hypertension or cardiac disease. Although improved metabolic control has resulted in a marked reduction of still births and improved perinatal survival, the incidence of congenital malformations in the new born still remains two to three fold higher in infants of diabetic mothers as compared to the normal population. This may be due to the fact that most women seek attention for pregnancy after the critical period of organogenesis is over. It is therefore a priority and challenge that physicians, obstetricians and paediatricians involve all pregnant diabetics in a health care scheme.

Carbohydrate Metabolism in Pregnancy

In the first few weeks of pregnancy there is increased insulin secretion and heightened tissue sensitivity to insulin. The increase in peripheral glucose utilisation decreases fasting plasma glucose by about 10% by middle to

late first trimester. In the second half of pregnancy, carbohydrate metabolism is stressed and a state of insulin resistance develops. The increased insulin secretion is sufficient to maintain normal glucose tolerance in 99% of all pregnant women and only 1% become diabetic.

Gestational Diabetes Mellitus

Normal pregnant women maintain plasma glucose levels within a narrow range during the 24 hour day. In early pregnancy the fasting blood sugar mean is 73 ± 9 mg/dl to a mean of 65 ± 9 mg/dl near term. Therefore goals for therapy must be defined by normal gestational standards and not by the normal non-gravid state. The term GESTATIONAL DIABETES MELLITUS is restricted to women in whom diabetes occurs during pregnancy. The patient has to be reclassified after delivery. The term does not include the diabetic patient who becomes pregnant.

W.H.O. Criteria for Impaired Glucose Tolerance (IGT) following a 75 gm Glucose Challenge (Venous Plasma)

I. Diabetes Mellitus

Fasting ≥ 7.8 mmol/L (140 mg/dl)
2 hours 11.1 mmol/L (200 mg/dl)

II. IGT

Fasting < 7.8 mmol/L (140 mg/dl)
2 hours 7.8-11.1 mmol/L
(140-200 mg/dl)

Screening for Gestational Diabetes

The International Workshop Conference on Gestational Diabetes has recommended that all pregnant women be screened between 24-28 weeks of gestation for IGT.

Registrar
Department of Medicine
Alexandra Hospital
Singapore

The following patients are considered to be at increased risk

1. A family history of diabetes
2. Presence of obesity
3. Hypertension
4. Hydramnios
5. Multiparity
6. Maternal age > 35 years
7. Glycosuria during pregnancy
8. Past obstetric history of
 - unexplained perinatal mortality
 - recurrent prematurity or abortion
 - macrosomia
 - congenital anomalies
9. Twin pregnancy
10. Early onset of Pre-eclampsia
11. Macrosomic foetus in current pregnancy

Effect of Diabetes on the Foetus

The foetus is dependant on circulating fuels from the mother. Hence pregnancy can be viewed as a 'tissue culture experience'. The culture of new foetal cells depends on establishing an optimal milieu in the mother. Insulin does not cross the placenta. Some workers have observed that insulin antibodies which cross the placenta may have long-term harmful effects on the foetal pancreas. Hence the well informed physician should use the least immunogenic insulin in patients in the child-bearing age group.

HbA_{1c} In Pregnancy

(Glycosylated Haemoglobin)

An association has been found between the magnitude of metabolic control as measured by HbA_{1c} and congenital anomalies. HbA_{1c} is a useful indicator of average long term blood glucose levels in diabetic subjects as hyperglycaemia that affects HbA_{1c} has to be long standing. Some other parameter that reflects glycaemia over several days may be an appropriate screening tool requiring only a single blood sample without glucose loading. Serum Fructosamine is being evaluated presently.

Pre-Pregnancy Clinic

The pre-pregnancy clinic must:

1. Ensure planned pregnancies
2. Assess patient's fitness for pregnancy with particular reference to retinopathy, nephropathy, hypertension and ischaemic heart disease
3. Obtain optimum diabetic control before conception and reinforce diabetic education
4. Identify time of conception

Management of Diabetes During Pregnancy

Fasting blood glucose should be maintained < 100 mgs/dl of venous whole blood and the 2 hour post-prandial level should be < 140 mgs/dl. This should be achieved by proper dietary and insulin therapy by home glucose monitoring. Starvation ketosis and hypoglycaemic episodes are undesirable as is diabetic coma.

Diet

It is generally recommended that the pregnant gestational diabetic should have 30-35 kcal/kg body weight with a lower limit of 1800 kcal and an upper limit of approximately 2600 kcal/day. Approximately 125 g (500 kcal) of protein are included, the remaining being divided between fat and carbohydrate. If the blood sugar threshold is exceeded insulin should be added. The calories should be divided amongst 3 main meals and snacks. A pre-bed time snack is essential to prevent nocturnal hypoglycaemia.

Insulin Regime

The least immunogenic insulin preparation should be used. An intermediate and a short-acting insulin are given twice daily before breakfast and before dinner. An additional dose of short acting insulin may be required before lunch.

Other therapies for Gestational Diabetes

Pyridoxine and dietary fibre have been tried but data concerning their efficacy is unconvincing. Besides, these compounds cross the placenta and theoretically stimulate foetal β cell insulin production. Since foetal

hyperinsulinism is believed to be responsible for most of the foetal and neonatal abnormalities seen in diabetic pregnancy these agents are not recommended. Patients should be seen fortnightly under 30 weeks and then weekly till term. Fasting and post prandial blood sugar must be estimated at each visit with frequent home glucose monitoring and HbA1c levels monthly. Foetal size, growth and function should be monitored closely and should be an integral part of physician-obstetrician collaboration. Rapidly progressing renal or retinal complications may be an indication to terminate pregnancy.

Labour and Delivery

Delivery should be normal unless there is foetal distress. The indication for Caesarean Section is purely obstetric. Prolonged hyperglycaemia with mean glucose levels exceeding 90 mgs/dl significantly increases the frequency of neonatal hypoglycaemia. Continuous infusion of insulin and glucose with close monitoring of glucose levels is advisable during labour. The paediatrician should be present to detect complications like hypoglycaemia and respiratory distress syndrome. Breast feeding can be commenced and insulin and food intake should be readjusted to pregravid levels as soon as possible.

Post-Natal Diabetic Follow Up

The meticulous control achieved during pregnancy is often lost post-partum. Hence diabetic education should be reinforced and contraception advised.

Long Term Effects

A proportion of gestational diabetics will continue to have IGT or develop overt diabetes later.

The incidence of juvenile diabetes mellitus is 20 times higher in offspring of overt diabetics than in the control population. Hence early education to prevent obesity in the mother with gestational diabetes and her offspring is essential.

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ORIGINAL PAPER

AIDS UPDATE FOR THE PRIMARY HEALTH CARE PHYSICIAN

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Dr T Thirumoorthy**

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INTRODUCTION

Since its initial recognition in the summer of 1981, cases of Acquired Immuno Deficiency Syndrome (AIDS) have been reported in more than ninety countries and from all continents of the world. As a result of its public health importance and interest, new knowledge and information is being continuously produced. This article is mainly to highlight some aspects of this new information which would be of interest to the primary health care physician.

New Name for the Virus

Human Immunodeficiency Virus (HIV) has been proposed by the Human Retrovirus Sub-committee commissioned by the International Committee on the Taxonomy of Viruses. This will replace the three previous names:-

1. Lymphadenopathy Associated Virus/Immunodeficiency Associated Virus (LAV/IDAV) designated by the French researchers Luc Montagnier and his colleagues at the Pasteur Institute in Paris.
2. Human T-lymphotropic virus III (HTLV III) the name given by Robert Gallo and his colleagues at the National Cancer Institute in the United States.

3. AIDS-associated virus (ARV) the name chosen by Jay Levy of the University of California in San Francisco.

The new name should conform to the common nomenclature for retroviruses and puts the virus in a sufficiently distinct group.

AIDS and HIV infection

The 1982 case definition of AIDS by the Centers for Disease Control in Atlanta, USA as "a reliably indicative of an underlying moderately indicative of an underlying cellular immune deficiency, occurring in a person with no known cause of immunodeficiency" is still used today. It is an empirical clinical definition and mainly devised for epidemiological and surveillance purposes. It was utilised for case reporting before its aetiology was known.

With the development of laboratory testing for antibodies, the CDC definition is made more specific by including only patients with positive result on testing for serum antibody and a low number of T-helper lymphocytes or a low ratio of T-helper to T-suppressor lymphocytes. Although this definition may serve its epidemiological function, the practising physician must be aware of the full spectrum of disease states related to the HIV infection.

Clinical Spectrum

The clinical spectrum of HIV infection includes:-

1. Acute Infection

An acute mononucleosis-like illness with fever, night sweats, malaise,

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myalgia, sore-throat, generalised lymphadenopathy, a macular exanthematous skin eruption and thrombocytopenia. This illness lasts from 3-14 days associated with subsequent seroconversion 3 to 8 weeks later. HIV infection should be considered in any high risk person with an acute mononucleosis-like syndrome.

2. Persistent Generalised Lymphadenopathy (PGL)

A clinical situation where the patient has asymptomatic persistent unexplained bilateral lymphadenopathy in two or more extra-inguinal sites for longer than three months.

3. AIDS Related Complex (ARC) or Constitutional Symptoms

A symptom and sign complex which includes fever, weight loss ($> 10\%$ body weight), persistent diarrhoea, drenching night sweats, severe malaise and signs of lymphadenopathy, oral candidiasis and splenomegaly. These patients often show at least one abnormality of immune function.

4. AIDS or Secondary Opportunistic Infections and/or Cancers

In this situation the patient presents with a major proven opportunistic infection or an unusual malignancy. The infections in AIDS are characterised as being unusual, often multiple, difficult to diagnose and having poor response to treatment. The malignancies commonly associated are Kaposi sarcoma, non Hodgkin's Lymphomas and other Lymphoreticular malignancy.

5. Predominantly Neurological Disease

In addition, it is now known that the Human Immunodeficiency virus is neurotrophic. A chronic encephalopathy unrelated to opportunistic CNS infection and due to direct virus infection of the central nervous system may occur in AIDS and HIV infected persons.

6. Asymptomatic

An asymptomatic antibody-positive healthy person is the common presentation at routine testing sites as in blood banks. Some of these persons show abnormal laboratory test of T-lymphocyte counts. With progression some may go on to develop minor non-life threatening fungal (oral candidiasis),

viral (persistent herpes simplex infections) and bacterial infections.

Clinical Presentation of HIV Infection

For the practising primary health care physician the clinical presentation of HIV infection can be divided for simplicity into:-

1. Pulmonary syndrome
2. Gastrointestinal Syndrome
3. Central Nervous System Complex
4. Syndrome of fever of unknown origin
5. Dermatological syndrome
6. Lymphadenopathy syndrome

The opportunistic and secondary infective agents in HIV infected patients would, to a large extent, be the infective agents prevalent in the community. Thus although in white homosexuals in San Francisco, *Pneumocystis pneumonia* is common, in Hispanics in the West Indies and in Africa, mycobacterium tuberculosis is the more common infective agent. Thus the clinical presentation in Singapore would be associated with common infective agents in our environment.

Pulmonary Syndrome

Clinical : cough and shortness of breath

Aetiology : *Pneumocystis carinii* — most common. *Mycobacterium tuberculosis* — may be more important in Singapore because of the high prevalence of this pathogen. Others include non-mycobacteria histoplasmosis, pulmonary candidiasis, pulmonary kaposi sarcoma and pulmonary cryptococcosis.

Gastrointestinal Syndrome

Clinical : Chronic profuse diarrhoea

Aetiology : 1 *Isospora belli*
2 *Cryptosporidia*
3 *Mycobacterium avium* — intracellularae
4 *Salmonellosis*, *Shigellosis*, *Amoebiasis* and *Giardiasis* may be more common in the Singapore environment.

Central Nervous System Syndrome

Clinical : early dementia, focal neurological signs and seizures, chorioretinitis

Aetiology : 1 Cryptococcosis
2 Cytomegalovirus (CMV) infection
3 Toxoplasmosis
4 HIV infection

Dermatological Syndrome

Clinical : Kaposi sarcoma, candidiasis, extensive dermatophytosis. Herpes simplex infection of oropharynx and perianal areas. Unusual seborrhoeic dermatitis.

CDC Classification System (MMWR May 23, 1986)

The CDC system classifies manifestations of HTLV III/LAV/HIV infection into four mutually exclusive groups as shown in the table.

Summary of Classification System for HTLV III/LAV/HIV

Group I	Acute infection
Group II	Asymptomatic infection
Group III	Persistent Generalised Lymphadenopathy
Group IV	Other Diseases/Complications
Subgroup A	Constitutional disease
Subgroup B	Neurological disease
Subgroup C	Secondary infectious diseases
Category C-1	Specified secondary infectious diseases listed in the CDC surveillance definition for AIDS
Category C-2	Other specified secondary infectious diseases
Subgroup D	Secondary cancers
Subgroup E	Other conditions

This classification system is primarily applicable to public health purposes including disease reporting and surveillance, epidemiological studies, prevention and control activities and public health policy and planning.

The primary health care physician should have a high index of suspicion for high risk persons to HIV infection and for an abnormally-behaving or fulminant common infective condition. Appropriate investigations would help in establishing the diagnosis. AIDS or HIV infection is now a major international health problem. The situation in Singapore is far from being an epidemic but to be pre-warned is to be fore-armed if the need arises.

ORIGINAL PAPER

LOWER LIMB MUSCLE INJURIES IN ATHLETES

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Dr K C Teh**

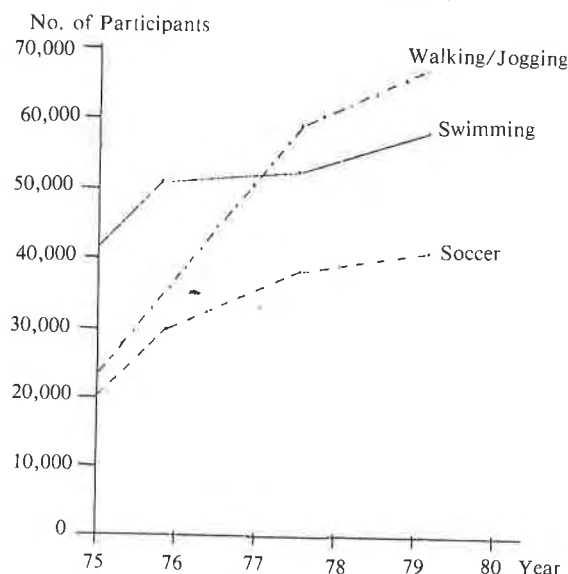
MBBS, MS (Sp Med)

Introduction

Over the past decade or so, many countries (including Singapore) have experienced rather dramatic increases in sports participation among people of all ages and both sexes¹ (Figure 1).

FIG 1: EXTENT OF SPORTS AND RECREATION PARTICIPATION IN SINGAPORE IN 1975, 1976, 1978 and 1980

(Source: Singapore Sports Council).¹



Over a ten-year period (1 January 1976 to 31 December 1985), a total 1,126,083 accident attendances were recorded in the Accident and Emergency (A&E) Departments of all the Government hospitals in Singapore.² (An attendance in this paper is defined as a regis-

tered medical consultation or treatment of a patient. Should the same patient return for a second consultation or treatment, another attendance would be recorded). There were 51,624 sports-related accident attendances and they constituted only 4.6% of the total accident attendances. By comparison, there were more than three times the number of home, road or work-related accident attendances during this same period (Table 1).

TABLE 1: FREQUENCY AND TYPE OF ACCIDENT ATTENDANCES AT ALL GOVERNMENT A & E DEPARTMENTS, SINGAPORE, 1976 to 1985²

Type of Accident	No. of Attendances	%
Sports	51,624	4.6
Home	174,938	15.5
Road	178,174	15.8
Work	189,812	16.9
Others	531,535	47.2
All	1,126,083	100.0

This percentage of 4.6% was lower than the 7.0% and 8.4% recorded for sports-related accident attendances at the Birmingham Accident Hospital, United Kingdom in 1975³ and the King Fahd University Hospital, Saudi Arabia, in 1983⁴ respectively.

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(Parts of this paper was presented by Dr C K Giam on 13 December 1986 in the Singapore General Hospital at the 1st Annual Orthopaedic Review course designed for practising Orthopaedic Surgeons and Orthopaedic Surgeons in training).

The Sports Medicine & Research Centre (SM & RC) of the Singapore Sports Council (SSC) is presently still the only comprehensive sports medicine centre for the general public in Singapore. One of its main functions is to provide specialised sports injury consultation and treatment services on an outpatient basis to both recreational and competitive athletes. (In this paper, the term athlete refers to a male or female involved in any sport, game or physical activity at recreational or competitive levels).

Over this same ten-year period (1 January 1976) to 31 December 1985), a total of 21,371 sports medical consultation attendances were recorded in the SM & RC's specialist sports medical outpatient clinic (or seen by SM & RC doctors providing medical services at sports events). Table 2 shows that muscle and tendon injuries (sprains) were the most frequently seen medical problems in the SM & RC.⁵

TABLE 2
FREQUENCY AND TYPE OF SPORTS MEDICAL PROBLEMS SEEN AT SSC'S SPORTS MEDICINE & RESEARCH CENTRE, 1976 TO 1985.⁵

Type of Sports Medical Problem Seen	No.	%
Muscle and Tendon Injuries (Strains)	9,656	45.2
Ligament and Joint Injuries (Sprains)	5,535	25.9
Contusions and Haematomas	1,172	5.5
Fractures and Dislocations	346	1.6
Heat Exhaustion and Heat Stroke	27	0.1
Other (e.g. "Chondromalacia patella")	4,635	21.7
All	21,371	100.0

It should however be pointed out that at least an equal number of sports medical problems are treated by private medical practitioners, at government outpatient departments (OPDs), by traditional medicine practitioners (e.g. sinsehs) and by the athletes themselves, their relatives or friends. Such problems are invariably also of the less severe type (e.g. first degree or second degree), which also constitute the vast majority of sports medical problems (more than 98%) seen in the SM & RC over these ten years.⁵

Frequency and Type of Lower Limb Muscle Injuries in Athletes

Lower limb injuries are the most frequent injuries seen in athletes because most physically-active sports involve running or jumping movements. Several studies have shown that lower limb injuries account for between 32% and 92.9% of all sports-related injuries.^{4,6,7,8,9,10,11,12,13,14}

A 12-month study (1 January to 31 December 1983) of 67 male and female national and school track sprinters who sought treatment in our SM & RC revealed that 52 of them (77.6%) sustained at least one episode of lower limb muscle injury (for strain, which in this paper is defined as an injury to any part of a muscle-tendon unit).

Strains can be broadly categorised according to their severity as follows:

1. **Mild or First degree:** only few fibres are torn; usually presents clinically with mild pain, tenderness, swelling, with little or no loss of function.
2. **Moderate or Second degree:** a moderate number of fibres are torn; usually presents clinically with moderate to severe pain, tenderness, swelling and some loss of function.
3. **Severe or Third degree:** nearly all or all fibres are torn, (i.e. complete disruption); usually presents clinically with moderate or severe pain, tenderness, swelling, loss of function and often requiring surgical treatment.

These 52 athletes studied sustained 142 episodes of lower limb strains (i.e. averaging 2.7 ± 2.0 strains per athlete) of all types during this 12-month period. Fortunately, none of these strains were of the severe or third degree category (e.g. near-complete or complete muscle belly or tendon ruptures which may have required surgical treatment). Hamstring and calf muscle strains were the commonest of the 142 episodes of lower limb muscle injuries noted in this study, accounting for 35 (24.6%) and 30 (21.1%) strains respectively (Table 3).

TABLE 3
FREQUENCY AND TYPE OF LOWER LIMB
MUSCLE STRAINS IN 52 SINGAPORE NATIONAL
AND SCHOOL SPRINTERS TREATED IN THE SM
& RC IN 1983.¹⁴

Muscle Group	No. of Strains	% of Total
Hamstrings	35	24.6
Calf	30	21.1
"Shinsplints"*	26	18.3
Quadriceps	20	14.1
Others**	31	21.8
All	142	100.0

* ("Shinsplints" in this study was defined as pain over the front of the leg due to strain of the leg muscles, usually the tibialis posterior.¹⁵)

** (Glutei, iliopsoas, hip adductors, abductors, etc.)

Some possible causes and methods of prevention for these strains (particularly the hamstring and calf muscles) are:

1. The biomechanics of sprinting requires high knee lifts, forceful kicks, and concentric and eccentric contractions of the hamstring and calf muscles put more stress on these muscles.^{15,16} Furthermore, muscles which act or cross two joints (such as the gastrocnemius and the hamstring group of muscles) are particularly vulnerable to injury.¹⁵
2. The hamstring and calf muscles are both tonic muscles and therefore are more prone to muscle tightness, resulting in decreased joint and muscle flexibility.^{17,18} In view of this, adequate and effective warm-up, followed by cool-down exercises, before and after each training session or competition, is essential. Light dynamic aerobic exercises, for example jogging and striding, to increase the heart rate and prepare the body for sprinting should also be included in the warm-up.
3. Studies have shown that hamstring/quadriceps strength ratios of less than 60%, or muscle imbalances of more than 10% between left and right muscle groups, increase the susceptibility to injury.^{15,16,19} Testing for muscle strength and strength ratios can be done using the Cybex II Isokinetic equipment to ensure that the muscle is sufficiently 'fit' for training or competition and to prevent

recurrences or aggravation of such injuries.

4. The frequency, intensity and duration of training and competition for these sprinters are extremely high. Often, the sprinters return to intensive training too soon after an injury and this may aggravate the existing injury as well as predispose to other injuries.²⁰
5. The texture of the running track or training surface should be relatively 'soft'. Grass, cinder and synthetic tracks (e.g. Tartan, Mondo) are softer, more pliable on impact and less traumatic to the lower limb muscles. Hard surfaces like bitumen and concrete should be avoided.

It must be pointed out that the frequency and type of lower limb muscle injuries in athletes in other sports or events may differ somewhat from those among sprinters. For example, long-distance runners and footballers have a higher incidence of "shinsplints" and quadriceps injuries respectively, compared with sprinters.

Principles of Treatment and Rehabilitation of Lower Limb Muscle Injuries in Athletes

The main differences between the treatment and rehabilitation of the competitive athlete and the non-athlete is the degree of specificity of treatment and intensity of rehabilitation. The rehabilitation of the competitive athlete must not only continue to a very much more advanced level of activity but it must also be designed to meet the specific demands of his sport. It is for this reason that those working in the field of Sports Medicine must also be knowledgeable about the sports with which their patients are involved in. The main objective of sports medical treatment and rehabilitation of injured competitive athletes is to assist and enable them to return to full training or competition as soon as possible.²¹ This should be done through the following:

1. Providing intensive medical treatment (occasionally surgical), electro-physiotherapy, active and passive rehabilitative exercise therapy within pain-free limits. The injured athlete should also be advised to rest only the injured muscles and abstain from any activities which are painful.

2. Correction of any faulty techniques or biomechanical problems (such as muscle imbalance or inflexibility) and advising and assisting on training methods in cooperation with his coach, manager or any other person closely associated with the athlete. This helps to prevent further injuries and ensures that the athlete does not return to full intensive training or competition too soon as this may result in aggravation of his present injuries and delay his recovery.

In the first 24 to 48 hours following a sports injury, the following "RICE" treatment principles are recommended both as a first-aid measure as well as in conjunction with more definitive medical or physiotherapy treatment:

- R = Rest the injured parts only.
- I = Ice or cold therapy.
- C = Compression bandaging of injured parts.
- E = Elevation of injured parts.

The injured parts should be allowed to **rest** to prevent further bleeding and damage, particularly in the first 24 to 48 hours post-injury. For more severe injuries, rest for 72 hours or more may be necessary. Rest also reduces pain. However, movement in the normal range is permissible as long as it is pain-free, and non-affected parts can continue to be exercised or trained. Any wounds (e.g. abrasions) should be appropriately dressed.

Ice or cold therapy has been proven to be helpful in treatment of most acute sports injuries (especially in the first 24 to 72 hours post-injury)^{22,23,24,25,26} because it:

1. Helps relieve pain.
2. Helps reduce the amount of bleeding and thus reduces haematoma formation and swelling.
3. Helps reduce the metabolic rate of the injured tissues, thereby reducing oxygen requirements and further tissue damage.
4. Helps reduce muscle spasm.

Ice therapy is simple, cheap, effective and very safe for most acute sports injuries. A great advantage is that it can be done by the athlete himself. Ice therapy may be applied using the following:

1. Ice cubes, blocks, or crushed ice (in a plastic, water-proof bag).
2. Re-usable cold packs.
3. Cold sprays (e.g. ethyl chloride spray). Such sprays are only useful for immediate relief and have a very short duration of effective cooling.
4. Ice water or ice towels.
5. Instant (chemical) ice packs.

Such applications, particularly ice itself, should preferably not be on bare skin. A thin bandage or towel should be placed between. This is to prevent frost bite from occurring. There is also less discomfort as the coldness is more gradually felt. To be effective, such cold applications should be left on the injured part for 15 to 30 minutes each time. During the initial few minutes, the part being iced will feel cold. This is followed by a burning and aching sensation. Numbness and pain relief is usually felt only after at least 8 to 10 minutes of application. During the first 24 to 72 hours post-injury, ice therapy may be repeated every 2 to 3 hours, if necessary. Possible, but rare, complications when using ice therapy include:

1. Frost bite.
2. Cold allergy.
3. Venous thrombosis and arterial spasm in those with claudication and Raynaud's disease (very rare occurrences in athletes).

Immediately after ice therapy has relieved pain by numbing the protective pain sensation reflex, the injured part should be rested and the injured athlete not allowed to return to physical activity unless the injury is relatively minor and has been protected from further injury.

Compression bandaging of the injured part (particularly if a swelling is present or expected) helps to reduce the swelling. It also provides additional support and protection, thereby minimising further injury.

Elevation of the injured lower limb (preferably above the level of the heart) is also helpful in reducing any swelling present.

Massage and heat treatment (such as Shortwave diathermy) is contra-indicated in the first 24 to 48 hours post-injury as the

movement and increased temperature will cause more blood vessels to dilate, may dislodge any blood clots that are formed, resulting in more bleeding.²⁷

Since most lower limb strains in athletes are not serious enough to require surgical treatment, treatment consists mainly of the following:

1. Oral non-steroidal anti-inflammatory drugs (NSAIDs).
2. Oral or topical enzyme preparations.
3. Topical steroid preparations.
4. Taping, bandaging and continuation of "RICE" treatment principles.
5. Heat and electro-physiotherapy.
6. Active and passive strengthening and stretching rehabilitative exercises.

The more severe strains would usually be painful, swollen, tender and often associated with a contusion or haematoma. If the haematoma is extremely large, needle aspiration may be required. Otherwise, most such strains usually require a 5 to 7-day course of NSAIDs (depending on stage, severity of injury and response to treatment) and topical steroids; a 3-day course of topical and/or oral enzymes if the contusion or haematoma is fairly large; supportive taping or bandaging to restrict movement, relieve pain and protect the injured parts, and continuation of ice treatment twice or thrice daily for 5 to 7 days.

After the first 24 to 48 hours post-injury, active physiotherapy rehabilitation of the injured athlete should be started. This is because swelling in and around the muscles stimulate the process of fibrosis and formation of adhesions. This results in decreased stretch and mobility in these muscles. Electro-physiotherapy modalities like Ultrasound have been found to be most effective in treating acute and chronic muscle strains.^{27,28} It induces a form of micromassage which by reducing oedema, facilitates muscle tissue repair.²⁹ High Voltage Galvanism (HVG) and Interferential Current therapy are very effective counter-irritants for pain and also assist in the healing process. They give effective pain relief, muscle relaxation to the injured muscle and stimulate an increase in the local circulation which increases the healing rate of the

injured muscle tissues. They can also be used subsequently to stimulate muscle contraction and strengthening of the injured muscle, by electrical stimulation. Mohr et al³⁰ have shown that HVG can contract a muscle up to 60% of the maximum voluntary contraction (MVC). Strength increases of 55% that of MVC have been recorded in injured muscles treated with HVG stimulation.

TABLE 4
FREQUENCY OF ELECTRO-PHYSIOTHERAPY
MODALITIES USED IN THE TREATMENT OF
HAMSTRING AND CALF MUSCLE STRAINS IN
SM & RC²⁸

Electro-Physiotherapy Modality	Frequency of Use
Ultrasound therapy	58.1%
Interferential Current therapy	22.6%
High Voltage Galvanism	16.1%
Shortwave Diathermy	3.2%
All	100%

Judicious stretching of the muscle within pain-free limits of the muscle should be started as early as possible, to prevent adhesions and shortening of the muscle. Various stretches for the hamstring and calf muscles, e.g. sit-and-reach, hurdler's stretch performed actively by the athlete or passively by the physiotherapist, are done for specific muscle groups. These stretches are held for 10 to 15 seconds and repeated 3 to 5 times, with rest intervals of 30 to 60 seconds between each stretch.

Graduated resistance exercises using free weights, Universal multi-station gym equipment, Orthotron, cycling, etc. are used, not only to strengthen the injured muscles but also to maintain overall strength and physical fitness of the body. A Cybex II isokinetic evaluation is used to ascertain if the muscle has recovered its strength compared to the antagonistic muscle group and compared to the same muscle groups of the uninjured lower limb.

Strains can also be categorised as follows:

Acute: Usually a single episode of injury which is often severe and usually due to over-stress. Such strains are usually seen within one week of injury.

Chronic: Usually an overuse injury of gradual onset due to several less severe episodes of injury. Such strains are often seen at least one week after the onset of symptoms.

Acute-on-Chronic: Usually a recent acute overstress injury on a pre-existing chronic overuse injury of some duration. Such injuries are usually seen within one week of onset of acute symptoms.

A 1986 study by our SM & RC on the rate of recovery of hamstring and calf muscle strains among national sprinters revealed the following results as summarised in Table 5.²⁸

TABLE 5
RATE OF RECOVERY OF HAMSTRING AND CALF MUSCLE STRAINS AMONG 52 SINGAPORE SPRINTERS TREATED IN THE PHYSOTHERAPY DEPARTMENT OF THE SM & RC IN 1983²⁸

Type of Strain	Mean No. \pm 1 SD of Physiotherapy Treatment Attendances*	Mean No. of Days \pm 1 SD Between First and Last Physiotherapy Treatment Attendances*
Acute	5.8 \pm 3.4	7.7 \pm 4.2
Acute-on-Chronic	10.0 \pm 7.1	15.5 \pm 13.4
Chronic	6.8 \pm 1.5	23.0 \pm 7.4
All	6.4 \pm 3.5	11.7 \pm 8.5

*(A physiotherapy attendance is defined as a visit for physiotherapy treatment which usually consists of exercises, heat and electro-therapy.)

From the results outlined in Table 5, it can be seen that the athlete, coach, physiotherapist or doctor should not expect the athlete to be able to resume full intensive training or be free of symptoms to be able to perform well in competitions for at least one week after injury for acute strains and two to three weeks for other strains. This has also been the recommendation of others like Klafs and Arnheim.¹⁶ However, it must be very strongly emphasized that this does not mean that the athlete must rest his whole body completely and not be involved in any form of physical activity! Rest should only be restricted to those activities which cause pain to the injured lower limb muscles. Physical activities and exercises for the upper limb and trunk muscles, and those of the uninjured

lower limb should continue (e.g. callisthenics, weight training, single-leg cycling, swimming) during this "rest" period. This is to maintain the fitness of the other muscles in the athlete. It should also be mentioned that strength training of the muscles of the uninjured lower limb can also result in a small but significant increase in the strength of the muscles of the injured lower limb. It is believed that neural factors are responsible for such transfer or cross-over effect.³¹

Summary and Conclusions

Lower limb muscle injuries are the commonest injuries in athletes participating in physically-active sports. This is because most of these sports involve running or jumping movements. The actual frequency and type of lower limb muscles injured may differ somewhat among athletes, depending on their type of sport or event. Fortunately, only less than 1% of these strains are of the severe or third degree type (e.g. complete or near-complete ruptures) which may require surgical treatment. Non-surgical treatment consists mainly of intensive medical treatment, "RICE" treatment, electro-physiotherapy, active and passive rehabilitative exercise therapy within pain-free limits, and resting the injured muscles only. Prevention of recurrences of injuries or aggravation of the present injuries can be effectively achieved only if the injured athlete is adequately informed and convinced of the need to correct faulty techniques, biomechanical problems and improve his training methods. This can be best achieved with the full cooperation of his coach, manager and others involved with the athlete's training.

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SOME ASPECTS OF URODYNAMIC INVESTIGATIONS OF THE LOWER URINARY TRACT

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INTRODUCTION

Urodynamics is a fairly new modality of investigation of the lower urinary tract in Singapore. Often it is not regarded as an essential investigation and some urologists still do not think it is necessary. However, if one can define the nature of the lesion that is giving rise to urinary difficulties, then treatment can be given on a more objective rather than empirical basis.

Why Urodynamics?

There are three main arguments for carrying out urodynamic studies (Table 1). The first is that it helps in clinical diagnosis. For instance, in females, it is important to distinguish between stress and urge incontinence before surgery is carried out. One of the reasons contributing to failure of urethral suspension procedures is that the surgery was performed for undetected unstable bladder.

TABLE 1.

Reasons for Urodynamics

1. Clinical diagnosis.
2. Evaluation of treatment.
3. Basic physiology.

Another example of how urodynamics can help in diagnosis is in a patient who complains of a poor urine stream. In such a situation, as we have commonly come across in clinical

practice, it is useful to know whether one is dealing with an obstructed outflow tract or with an under-active detrusor muscle.

The second reason for urodynamics is to evaluate the results of treatment. It is well established that symptoms alone are not an adequate way of evaluating response to treatment and urodynamics is required to provide an objective assessment.

The third reason is that urodynamics can provide us with information about normal and abnormal physiology of the bladder. There is still much that is not understood of the bladder and its sphincters and urodynamic studies can help in research into the storage and voiding functions of the bladder.

What is Urodynamics?

Urodynamics, then, is a group of investigations designed to evaluate the function of the bladder and its sphincters. It consists of a series of tests each with its own indications (Table 2). These tests vary from the simplest, non-invasive examination, that is, the free urine flow rate, to elaborate investigations combining the use of fluoroscopy and pressure measurements.

TABLE 2.

Urodynamic studies consist of

1. Uroflowmetry.
2. Urethral pressure profilometry.
3. Filling and voiding cystometry.
4. Electromyography.
5. Combined synchronous video cystometry.

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The Free Urine Flow Rate

The free urine flow rate is a very simple test to carry out. All the patient has to do is to pass urine into a funnel and his voiding pattern together with various flow parameters will be printed out. It is the basic screening test for any patient with any suggestion of abnormality of bladder emptying. It aids in the diagnosis of outflow obstruction and is useful for follow-up after treatment (Fig. 1,2).

The Cystometry

This gives much information about the bladder. However, it is more invasive and requires the insertion of fine catheters into the bladder for filling and for pressure measurements. It provides information about bladder capacity, its pressure changes and whether or not there are unstable contractions among other things.

The cystometry consists of 2 phases. In the filling phase, the bladder is filled with saline at a constant rate. The bladder pressure is continuously monitored throughout. The point at which the patient first feels that there is urine in his bladder, the first sensation, provides some information regarding the sensory status of the bladder. This usually occurs at about 150 to 200 mls. The infusion is continued up to the point when the patient feels that he has to void. This is the maximum cystometric capacity of the bladder. Infusion is stopped

at this stage. Throughout the filling phase, any pressure changes in the bladder are noted. Normally, the pressure should not rise above 12 cm of water. The patient is also asked to cough at various intervals in the filling phase to detect the presence of unstable contractions.

At the maximum cystometric capacity, the patient is allowed to void. The filling catheter is removed and only a fine 18 F epidural catheter remains. As the patient voids, the voiding pressure is measured via this catheter. This voiding phase provides valuable information about the act of micturition.

Other investigations carried out when indicated are the urethral pressure profilometry and electromyography of the urethral sphincters. These tests provide information regarding the resistance of the urethra to urine flow and are helpful in determining the cause of a poor urine flow.

Conclusions

Micturition is a dynamic act and it is only logical that investigations carried out should measure this dynamic aspect of the bladder. Cystoscopy, although an invaluable investigation, is a static examination. The only way available today to objectively assess the dynamics of micturition is by doing urodynamic studies.

FIG 1: FREE FLOW STUDY SHOWING A NORMAL PATTERN.

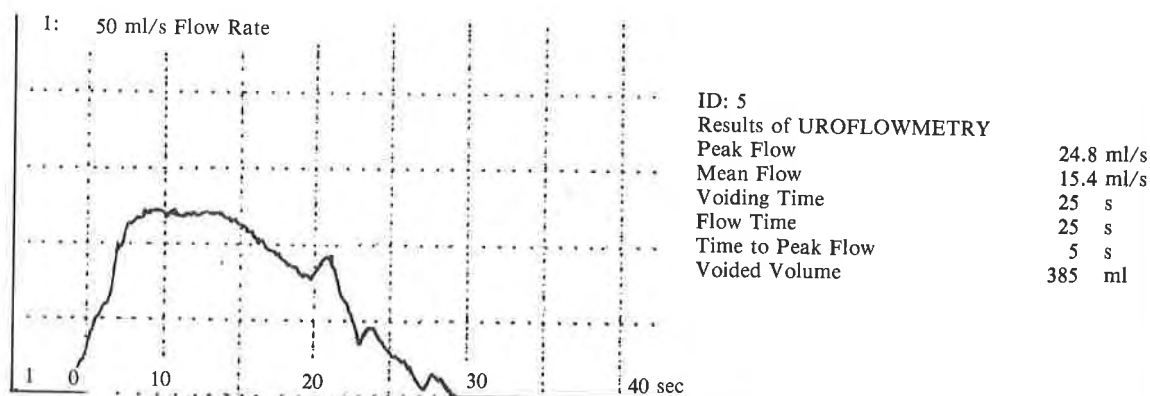
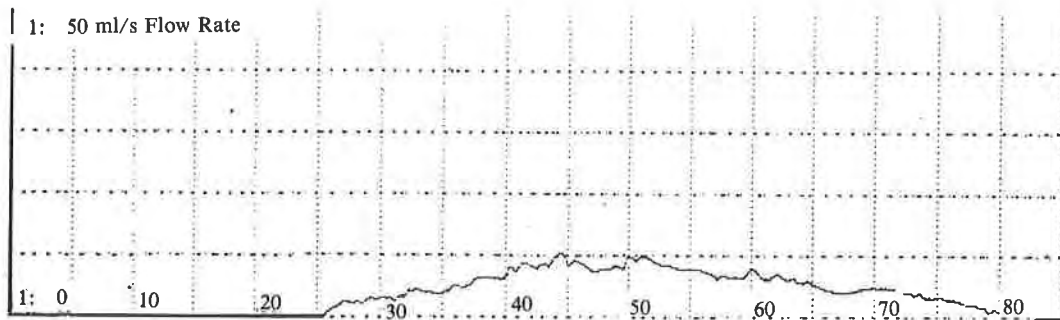


FIG 2: FREE FLOW SHOWING AN OBSTRUCTED PATTERN.



ID: 2

Results of UROFLOWMETRY

Peak Flow	10.5 ml/s
Mean Flow	5.6 ml/s
Voiding Time	56 s
Flow Time	56 s
Time to Peak Flow	19 s
Voided Volume	315 ml

THE POST-COITAL PILL — A MORNING-AFTER FINAL SOLUTION OR A BITTER MEDICINE?

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INTRODUCTION

The evolution of social and sexual structures in many Asian societies have, in many aspects, emulated those in the West. With increasing sexual permissiveness, associated consequences such as unwanted pregnancies and sexually transmitted diseases have been increasing, sometimes to epidemic proportions.

Many young females embark on their first sexual experience with little if any protection against pregnancy.^{1,2,3} The sudden realization that pregnancy is a likely consequence of such actions often prompts the female to visit her family doctor for post-coital contraception. The family practitioner is not only faced with the duty to provide some form of emergency contraception but also the responsibility to counsel and ensure that a continuing means of contraception is made available.

Post-coital oral contraception should be reserved only for emergency situations. In theory, no woman should make use of this form of contraception more than once.

Historical Perspective

The need to intercept conception after unprotected intercourse has existed for thousands of years. Women of different cultures have used various chemicals to instil into their genital tract before or after coitus. Unfortunately, many of these were rather noxious

and irritating to the vagina, resulting in tissue injury, infection and sometimes scarring.

Physical means, like jumping and gyrations postcoitally have been practised but most of them were obviously ineffective.

The need for an effective post-coital contraceptive has been recognised for a long time. Accurate knowledge into reproductive physiology and endocrinology is only recently available. Deployment of post-coital hormonal contraceptives started in the 1960.⁴ There is still a need to produce an agent which is totally effective not only for emergency situation but also capable of providing ongoing contraception with minimal side effects.

Pharmacology

There are basically 2 groups of drugs that are being used for post-coital contraception. One is designed for emergency situations like failed contraceptive methods and for victims of rape. It is ideally used for only one occasion. The other group is designed to provide some form of emergency as well as ongoing contraception. Of the latter, progestational agents have been advocated for this purpose. The action of these agents is dependent on the dosage, mode and frequency of administration. The use of progestational agents often results in poor cycle control, with irregular menses and intermenstrual bleeding, all of which can mimic threatened first trimester miscarriage. As expected, they are not popular.

Most interest has been centered around a 'one shot' post-coital contraceptive. High dose oestrogens like stilbestrol have been used in the past.⁵ Severe and unpleasant side-effects like nausea and vomiting, headache, dizziness

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and breast tenderness often resulted in poor compliance.

Subsequent development of a combined oestrogen-progestogen preparation,^{6,7} was found to cause less side-effects without loss of contraceptive efficacy. Present day preparations usually contain a combination of an oestrogen (ethinylloestradiol) and a progestogen (levonorgestrel). It was found that a total dose containing 200 mcg of ethinylloestradiol and 2 mg of levonorgestrel (equivalent to two ordinary 50 mcg oestrogen pills taken 12 hours apart = total of 4 tablets) resulted in a pregnancy rate of only 0.17%.⁶ However, half that total dosage produced an unacceptably high pregnancy rate of 2.4%.⁸

The efficacy of a single dose therapy available on the market at the moment remains to be seen.

Mode of Action

The exact mechanism remains speculative. This depends on the type of steroid administered and the timing of the cycle that it is given. The postulated potential actions of post-coital drugs include alteration of sperm function and movement, tubal transport, fertilization, luteal function, endometrial receptiveness, inhibition of implantation and embryonic viability. It is also possible that ovulation may be suppressed when the drug is administered at the appropriate time of the cycle. Asynchrony between glandular and stromal development in the endometrium in women treated with the combined regimen has been found.⁹ This may well interfere with implantation. However, no information is available to confirm an abortifacient effect of the combined regimen.

Side Effects

Nausea, vomiting, headaches, dizziness, breast tenderness can be experienced. An isolated case of pulmonary oedema has been reported. There is also an increased risk of ectopic pregnancy.^{10,11} It is believed that this may be due to some inhibition of tubal function. One estimate is that 10% of the pregnancies resulting from failure of this method will be tubal in location.

The potential teratogenic effects after unsuccessful treatment have not been

evaluated because most patients have opted for termination of pregnancy.

Can this high dose combination regimen be used repeatedly as an ongoing method of contraception?

It has been suggested that this form of contraception is most suited to the couple who have infrequent intercourse. Many practitioners have a handful of patients who ask for repeat prescriptions every now and then.

The failure rate reported for this form of contraception varies from 0.6% and 1.9% per cycle.¹² Assuming that an average cycle is 28 days, this figure must be multiplied by 13 in order to derive the overall pregnancy rate per year. This works out to a rate of 7.8%-24.7%, which is a disturbingly high figure. In other words, a lot of women are going to 'get caught' sooner or later. I am sure many practitioners have already seen patients in this dilemma.

Therefore, from a statistical point of view, it would be unwise to prescribe post-coital oral contraception to the same patient repeatedly. Whether doing so constitutes a certain degree of professional negligence is open to debate.

Comments

There is no doubt that the post-coital pill has many advantages. For the purpose of long term contraception, it is preferable to advise a more conventional form of family planning. Sexual permissiveness prevalent in our societies also means that many sexual encounters are unpremeditated and unprotected. The family practitioner is often placed in a difficult position. He or she has to ascertain that the post-coital treatment is prescribed within 72 hours of unprotected coitus. Many patients present later than that. What is the alternative? An intrauterine contraceptive device can be inserted up to five days after coitus with no pregnancies reported. But that is another subject.

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SYMPOSIUM ON GERIATRIC ORTHOPAEDICS

The University Department of Orthopaedic Surgery and Gerontological Society of Singapore was organising a Symposium on Geriatric Orthopaedics from 21 to 23 August 1987 in Singapore. The Symposium is designed for orthopaedic surgeons and staff involved in the care of the elderly. Several topics including medical problems in elderly orthopaedic patients, diabetes and amputations, osteoporosis and fractures in elderly, malignancies and terminal care and rehabilitation will be covered.

Those who are interested can write to:-

**The Secretary
Symposium on Geriatric Orthopaedics
c/o Department of Orthopaedic Surgery
National University Hospital
Lower Kent Ridge Road
Singapore 0511**

PRESIDENT'S ADDRESS

TWELVTH COLLEGE CONVOCATION AND DINNER AND NINTH SREENIVASAN ORATION

1. INTRODUCTION

The High Commissioner for Malaysia and Mrs. K.T. Ratnam, distinguished guests, members and friends, welcome to our Twelvth Convocation and Dinner and the Ninth Sreenivasan Oration.

2. CME

Your Council has had a busy year. Our Continuing Medical Education (C.M.E.) programme still heads the list of priorities. You may be pleased to note that on an average 120-140 members attend the 9 p.m., Friday lectures. The response has been so good that if you arrive late for the lectures the car park is filled up. Even though the response has been good, what are the rest of the members doing? Are they waiting for the Ministry of Health to enforce compulsory C.M.E. programmes? Surely, it is wiser to up-date our medical knowledge voluntarily than to be forced into attending compulsory C.M.E. programmes. As responsible and respectable doctors we should continually up-date our medical knowledge for our own benefit and for that of our patients. As our patients are becoming more educated they will scrutinize our medical practice more critically than ever before.

3. M.C.G.P. EXAMINATION

Another way of up-dating and up-grading our medical knowledge is to attempt the Diplomate Examination of the College. The M.C.G.P. (Member of the College of General Practitioners), is a registable post-graduate

diploma. I am pleased to announce that at the last M.C.G.P. examination nine candidates were successful. We congratulate them for their hard work and sacrifices they made. They not only managed their medical practice, they also attended all the modules of our C.M.E. programmes and ward rounds. The examination involved three Sundays this year. Apart from taking care of their spouses, they had to take care of their children. During the examination, one candidate managed to coerce her obstetrician husband to taking care of their three children and literally man the house while she took the examination! Meanwhile, he was involved in the World Congress of Fertility and Sterility. He passed his test as a working father and she passed her examination.

4. MINISTRY OF HEALTH

I would like to take this opportunity to thank the Minister of State for Health, Mr. Yeo Cheow Tong, the Permanent Secretary, Dr. Kwa Soon Bee, the Director of Medical Services, Dr. Chew Chin Hin, the Head of Primary Health Division, Dr. Chen Ai Joo, the Director of Planning, Dr. Ling Sing Lin, the Finance Secretary, Mr. Lawrence Lim, and many other officials for according us the several fruitful meetings we had over the past year. As representative of our College, I was honoured to be invited to the Health Advisory Council which also included representatives from our sister medical organizations, and senior members of our medical profession.

We discussed many medical issues of National interest and I can safely say that the people at the helm of the Ministry of Health are earnest in their desire to ensure that the people of Singapore can enjoy as good a medical service as our economic status can allow us. We had free exchange of ideas and proposals since we are targeting for Excellence in Medical Advancement.

*Dr. Lee Suan Yew
President
College of the General Practitioners, Singapore*

TOWARDS MEDICAL EXCELLENCE

Towards this end our College can make a contribution by keeping a high standard of General/Family practice. To achieve Excellence we need good Family Physicians, good specialists and good sub-specialists. We need to do more research. We need a good post-graduate medical library. These are the basic pre-requisites. If our objective is correct, that is Medical Excellence is for our people, then if visitors were to come to Singapore for medical treatment it will be a compliment to our medical expertise. If the spin-off is to improve our economy it is well and good.

The top Teaching hospitals in Britain and in the U.S.A., cater for their own people. Research goes on irrespective of the immediate economic value it may bring. As a result of their excellent medical facilities, patients from all over the world visit these places for their medical treatment. In Britain, they make sure that every citizen is registered with a General Practitioner. The consultants only see patients referred to them by the General Practitioners. This way, the consultants can tackle problematical cases more thoroughly instead of having a semi-primary health care type of specialist practice. I am not for a moment suggesting that we adopt the British System of National Health Service which is very costly. But I do wish to point out:- (i) the premium they place on their General Practitioners and (ii) how they maximise the time and expertise of their specialists. (iii) They welcome patient-tourists but priority goes to their citizens first.

5. MEDICAL SCHOOL, NATIONAL UNIVERSITY OF SINGAPORE

Our rapport with Prof. Edward Tock, the Dean of the Medical School and with Prof. Phoon Wai Onn and his staff is excellent. The Medical School still wishes our College to continue with the ten lectures we give to the Third-year Medical students and the week's General Practice postings at the part-time Clinical Teacher's Clinic. Detailed discussions are currently going on between our College and the Medical School. There may be several changes for the better in the near future.

6. SISTER MEDICAL ASSOCIATIONS

(i) Academy of Medicine

Thanks to Dr. Lawrence Chan, Master of the Academy, and his Council Members, we are working very closely together.

(a) Joint Celebration

There is a joint committee with the Academy to organise the Opening Celebration of the College of Medicine Building (C.O.M.B.) Dr. Alfred Loh represents the College and Prof. Feng Pao Hsui represents the Academy. The C.O.M.B. is scheduled to open on 9th May, 1987.

(b) Joint Post-Graduate Medical Reference Library

The College and the Academy are planning an excellent Post-graduate Medical Reference Library at the Mezzanine Floor of the C.O.M.B. Thanks to Miss Lee Siok Tin, who is in our Ways and Means Committee, she has been very resourceful in obtaining funds for us. Our first big donation came from the Lee Foundation. It was \$500,000/-. Thanks to Dr. Chee Pui Hung and his Ransome Fellowship Fund Committee we received a donation of \$50,000/-.

Our thanks go to the Chinese Women's Association for the Committee has promised \$50,000/-.

To-date, we have received \$22,000/- from our medical colleagues. We hope to receive more by Christmas!

(ii) Singapore Medical Association

We thank Dr. Khoo Chong Yew, President of the S.M.A., and his Council for the close co-operation on several matters especially in the computer link-up. Soon members with computers can link-up with the S.M.A. computer system to get information on lecture programmes.

(iii) The Association of Private Medical Practitioners

A pilot scheme of General Practitioners

attending lunch-hour talks and demonstration at the Alexandra Hospital proved to be successful. The Toa Payoh Hospital has started a similar scheme. This not only brings up-to-date new techniques available in the hospitals but it also brings the Family Physicians closer to the hospital Medical Staff. We fully support the A.P.M.P.S. on this project.

(iv) Alumni

We thank the Alumni for housing the College for the past fifteen years. We may part company physically but ties will and should continue.

(v) College of General Practitioners, Malaysia

We had a Joint Meeting with their former College President, Dr. Syed Mahmood Bin Syed Hussain and their Council in Kuala Lumpur in January this year. We had an interesting discussion on several topics. We have invited Dr. Ruby Binti Abdul Majeed, their new President and her Council Members to a Joint Meeting in Singapore in early May, 1987.



The proud graduands.....



.....and the Top Student, Miss Predeebha A/P P. N. Kannan, receives her Prize.

7. CONCLUSION

As you can see, we have had a busy year and we look forward to an exciting year ahead when we move to the C.O.M.B. I am confident that you will be proud of our new premises.

Thank-you all for the support you have given

- (a) Financially to: i) The Victor L. Fernandez Fellowship Fund
- ii) The College Renovation Fund
- iii) The Medical Library Fund

- (b) In attending the C.M.E. Modules and
- (c) In taking the M.C.G.P. Examinations.

We wish to thank Dr. Wong Heck Sing, former President of the College, and all those who have helped the College in the past year. We are "going places" literally and figuratively, and there is no turning back.



Dr James Chang receives the Albert Lim Award from the President, Dr Lee Suan Yew.

HOME STUDY SECTION

A CLINICAL APPROACH TO THE DIAGNOSIS OF GENITAL ULCERATION

Dr C T Lee

MBBS (Singapore), M. Med (Int. Med)

MRCP (Dublin), Dip. Derm. (London), Dip. Ven. (London)

A genital ulcer is defined as a more or less circumscribed loss of tissue on a cutaneous or mucous surface of the genital organs, ranging from a superficial erosion to a massive defect^{1,2}. Genital ulcer disease is a common clinical problem in sexually transmitted diseases (STD) clinics. Patients with this problem comprise 20-70% of patients seen in STD clinics in parts of East and South-East Asia and Africa. In Sweden, England and Wales, and the USA, the incidence is lower, between 3-4%³.

To be meaningful, the clinical approach must include an adequate and accurate clinical history and a thorough physical examination. In the history taking, the emphasis is on adequate and not detailed history because adequate history needs not be detailed but detailed history definitely takes a very long time which may not be practical. In the physical examination, inspection should play a very important part, and a good inspection will provide a lot of information rapidly.

The first step in the approach of genital ulceration, as in the approach of any other symptom or sign, is to know the causes of genital ulceration^{4,5,6,7,8}. We must commit to memory the common causes for instant recall. The common causes of genital ulceration are chancroid, herpes genitalis, mixed infections, primary syphilis, trauma and lymphogranuloma venereum. Mixed infections are defined as infections due to a combination of

more than one primary pathogen such as Herpes simplex, *Treponema pallidum*, or a combination of one primary pathogen and one or more secondary pathogens such as Streptococci or Staphylococci. The other causes of genital ulcerations are less common. Bacterial causes include syphilis, both secondary and tertiary, pyogenic, diphtheria, tuberculosis, granuloma inguinale, gonorrhoea, erosive balanitis/vulvitis, and furunculosis. So far, ulcers due to diphtheria, tuberculosis or granuloma inguinale have not been seen in Middle Road Hospital.

Erosive balanitis/vulvitis refers to balanitis or vulvitis due to Vincent's organism which is one of the species of *Borrelia* which in turn belongs to one of the three genera of Spirochaetes, the other two genera being *Leptospira* and *Treponema*⁹. Vincent's organism commonly occurs with *Fusobacterium fusiformis* which is one of the anaerobic organisms. Herpes zoster is the other viral infection that can affect the genitalia alone. Genital ulcers due to amoebiasis, cutaneous leishmaniasis, filariasis and trichomoniasis have not been encountered in Middle Road Hospital. Scabies and pubic lice probably cause genital ulcers as a result of excoriations and secondary infections.

Tumours can present as genital ulcers. Bowen's disease is an intraepidermal carcinoma. Extramammary Paget's disease is a form of submucosal glandular or ductal carcinoma that invades the perineal mucosa¹⁰. Squamous cell carcinoma occurs on the genitalia more commonly than basal cell carcinoma.

Pemphigus vulgaris may have a predilection for the vulva. Behcet's syndrome consists of recurrent oral and genital ulcerations, iritis,

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multiple signs and symptoms in other organ systems and multiple papulopustules on the skin, but sometimes may present with genital ulcers alone.

Iatrogenic causes should not be forgotten. Fixed drug eruption when secondarily infected can mimic primary genital herpes. Steven Johnson's syndrome is a bullous form of erythema multiforme. Various forms of irritants such as dettol, undiluted potassium permanganate and liniments may cause dermatitis of the genitalia followed by ulcerations. Podophyllin can certainly cause multiple ulcers if proper instructions are not given to the patient regarding its application.

A prospective study of the aetiological agents involved in purulent penile ulcers showed the following results: In 54% of the patients we could not isolate any pathogens. In 23% of the patients we isolated *Haemophilus ducreyi*. Herpes simplex virus type 2 accounted for 11% of the cases, *Neisseria gonorrhoeae* 6%, concomitant *Haemophilus ducreyi* and *Neisseria gonorrhoeae* 4%, and 2% of the cases were due to *Treponema pallidum* on serological testing. In this study, obvious cases of primary or secondary syphilis were not included¹¹. It follows therefore that so called 'chancroidal ulcers' may be due to agents other than *Haemophilus ducreyi*.

History

The history may help us in the elucidation of the cause of genital ulcerations.

The age of the patient is relevant, as in the older age group, we must always think of non-STD causes especially carcinoma, which if detected early can be curable. For most of our STDs the commonest age group is the 20-30 year age group¹².

In female patients, we found that trauma and primary herpes genitalis are the commonest causes. In fact, painful multiple ulcers in young sexually active females are almost always due to primary herpes genitalis.

Herpes and chancroid are less common in Malays than the other races. This may be related to the absence of the prepuce as a result of circumcision.

The occupation may indicate to us as to

whether patient is in a high risk group or not but generally is not helpful in suggesting any particular cause of genital ulcers.

The sexual history should include sexual contacts including marital and extramarital, regular and casual, genital, oral and rectal. Oral genital contacts may account for the increased incidence of primary type I genital herpes in females. Oro-genital sex may suggest herpes as a cause of genital ulcers as the other common causes of genital ulcers are not usually due to this except perhaps trauma. The sexual history is also important in determining the incubation period, which can sometimes help us in deciding on the most likely cause of the genital ulcers. The incubation period of primary syphilis is generally 21 days, but the range is fairly wide, 9 to 90 days. Secondary syphilis generally presents 6 to 8 weeks after the appearance of the chancre, and gumma 3-10 years after. The incubation periods for chancroid, herpes genitalis and lymphogranuloma venereum (LGV) are about the same, i.e. 1-5 days after exposure, but the ranges for chancroid and LGV are much longer, up to 30 days for chancroid and 35 days for LGV, whereas the range for herpes genitalis is up to 7 days. The incubation period for granuloma inguinale is not very certain, but the generally quoted figure is 7-30 days with a range of 3 days to 6 months. Therefore, if the incubation period is less than one week, then it is less likely that the patient is having primary syphilis; the diagnoses will more likely be herpes genitalis or chancroid or LGV. If the incubation period is more than one week, then it is less likely that the patient is having herpes genitalis.

An ulcer that has persisted for a long time in terms of months is likely to be malignant or premalignant. This is especially so if the patient is elderly.

Pain is an important symptom to ask for and is a useful clue to the cause of the ulcer. Painless ulcer suggests syphilis, carcinoma, premalignant conditions, tuberculosis and granuloma inguinale, but as the last four are uncommon, painless ulcers in young sexually active males are most likely due to syphilis. When the ulcers are painful then the diagnostic range is wider. They may then be due to chancroid, mixed infections, and herpes genitalis.

The other symptoms which are worth asking for are as follows: Constitutional symptoms such as fever, malaise, headache, myalgia occur in up to 30% of patients with primary genital herpes. They are also common and severe in Steven Johnson's syndrome and are often found in patients with LGV.

A history of recurrent iritis, orogenital ulcers obviously suggest the diagnosis of Behcet's syndrome. History of blisters is important as there are only four conditions to think of, namely genital herpes, herpes zoster, fixed drug eruption, and rarely pemphigus. Herpes zoster follows a dermatomal distribution, fixed drug eruption has the characteristic story of redness and pain, followed by blistering and darkish colour changes.

A past history of similar lesions is also helpful as it suggests herpes genitalis, fixed drug eruption, recurrent monilial balanitis/vulvitis and Behcet's syndrome. Monilial infections are more likely to have severe itch.

Drug history is mandatory nowadays in any branch of medicine. With respect to genital ulcers, history of penicillin allergy is particularly important as fatality may occur if penicillin is administered to a patient with penicillin allergy.

There are many drugs that can cause fixed drug eruption¹³. Commoner drugs that can cause fixed drug eruptions are tetracycline (which is probably the commonest drug that causes this type of drug eruption), phenolphthalein, sulphonamides, dapsone, barbiturates, diazepam and phenylbutazone. Diphenhydramine hydrochloride, which is present in some of the cough mixtures, can also cause fixed drug eruption.

Topical medications like Chinese medicine, antiseptic creams, and antibiotic creams, are frequently used by patients and they may be the source of irritant contact dermatitis which sometimes can be very severe and causes problem in diagnosis if the history omits this aspect.

Physical Examination:

Ideally, patient should be undressed completely and examined from head to foot, back and front. Particular attention should be paid to the genitalia and the inguinal lymph nodes.

It is certainly very bad practice to examine only part of the genitalia. Inspection alone is not enough. To improve the clinician's own clinical skills and for the benefit of the patient, palpation of the ulcers should be part of the routine in the examination of genital ulcers. Unless palpation of many different types of lymph nodes and ulcers is done, we will not appreciate what is meant by rubbery, discrete, matted or hard lymph nodes, nor can we know how an indurated ulcer feels like.

Perhaps the most helpful part of the examination in pointing to the aetiology of genital ulcers is the characteristics of the ulcers and any accompanying lymphadenopathy.

The lymphatic drainage of the male and female external genitalia is primarily to the inguinal lymph nodes; the inner two-thirds of the vagina and the cervix drain to the sacral lymph nodes. The lymph nodes of primary and secondary syphilis are classically painless (the indolent bubo) but those associated with herpes simplex, LGV and chancroid may be painful. Adenopathy above and below the Poupart's ligament produces the 'groove sign' and is characteristic of LGV. Bilateral inguinal lymph node involvement is more characteristic of syphilis and herpes, whereas LGV and chancroid are more likely to have unilateral inguinal lymphadenopathy. The pseudo-bubo of granuloma inguinale refers to the subcutaneous granulomatous process which may or may not involve the lymph nodes as well.

Chronic nontender and hard lymphadenopathy with a persistent genital lesion is more suggestive of genital malignancy with secondary lymph node metastasis. Lymphatic malignancy should be considered when the patient presents with chronic nontender inguinal adenopathy and no genital lesion. It must be remembered, however, that there is a considerable overlap in the signs and symptoms of the lymphadenopathy, and when the ulcers are secondarily infected, the characteristics of the lymph nodes may reflect secondary infection rather than the primary process. Chancroid ulcers start as painful, tender papules which soon become pustules and then break down to form ulcers. The number of ulcers can vary from one to three or more with a purulent base. Perhaps the

most characteristic feature of chancroid ulcer is the erythematous and undermined excavated edge.

Genital herpes begins with vesicles which soon rupture leaving erosions with a narrow bright red margin. In the common recurrent episode, there is a cluster of erosions. In the rarer primary attack, the erosions are more widespread. Multiple erosions may coalesce to form a single lesion but on closer examination we may be able to discern that the margin is formed by the multiple arcs of the previous erosions. Grouped erosions or vesicles is the clue to any herpes infection.

Syphilitic chancre starts as a dull red macule which soon becomes papular and ulcerates. The classical chancre is nontender, sharply demarcated, superficial, red and smooth with a serious discharge. Experience shows that the haemorrhagic appearance of the base of the ulcer is a very helpful clue to the diagnosis of syphilitic chancre. The other helpful feature is induration.

The initial lesion of LGV may be a papule, pustule or a vesicle but this is usually evanescent and the patient commonly presents with the lymphadenopathy.

The early lesion of granuloma inguinale commences as a papule which later ulcerates to form a single, enlarging, granulomatous velvety, beefy-red ulcer.

It must be realised that even though each infection has its own characteristic features, simultaneous occurrence of multiple pathogens and secondary infections may alter the characteristic features.

Rapid Approach:

The above approach is of course ideal, and should be the correct approach if time allows. But oftentimes, a shorter approach may be needed in a busy clinic. The first question to ask is whether there is any pain. A painless ulcer is most likely to be syphilitic and this can be confirmed by the induration and the haemorrhagic appearance. When there is pain, then we have to see whether the ulcer is single or multiple. Single painful ulcer is more likely to be chancroid or an infected chancre. Chancroid ulcers can be confirmed by the

undermined edges and the tender inguinal lymph nodes. Multiple tender ulcers can be chancroid, herpes genitalis or Behcet's syndrome. Herpetic lesions are grouped, and the ulcer in Behcet's syndrome is punched out, deep and pussy.

Transient ulcer followed by inguinal lymphadenopathy is very likely to be due to LGV.

When the lesions are severe and erosive, then the possibilities are more and we have really no short cuts. The presence of a urethral discharge together with an ulcer suggests that the ulcer may be due to *Neisseria gonorrhoeae*¹⁴.

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HOME STUDY SECTION

THE DIZZY ELDERLY

Dr B L Siow

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Dizziness is a common symptom in the elderly. The sensation may be described as lightheadedness, faintness, disequilibrium or vertigo. The physiologic feeling of dizziness is produced by the mismatch between sensory inputs from the vestibular, visual, cerebellar, cervical and somatic proprioceptors. The brain interprets this mismatch as a sensation of dizziness; the greater the mismatch, the more severe the intensity of dizziness produced. In the elderly compromised brain, dizziness may be easily produced by minor systemic illnesses which add on to the effects of vascular insufficiency and primary degenerative processes within the sensory systems. It is a challenge to the primary care physician to piece together the various contributory factors that can lead to this complex sensation of dizziness.

Evaluation of dizziness

Dizziness may be described as actual vertigo, a sense of disequilibrium or a pre-syncope event. **Vertigo** in strict terms refers to the illusory sensation of unidirectional movement. It can be produced by either peripheral or central neurological causes. **Presyncope** dizziness is produced by circumstances which decrease the cerebral blood flow such as orthostatic hypotension, cardiac arrhythmias, carotid sinus hyper-sensitivity or vasovagal syncope. **Disequilibrium** has been described by some neurologists as a loss of balance which occurs only during walking or turning¹.

In the evaluation of the cause of dizziness, the physician often encounters two issues:-

- (a) Is the dizziness due to organic or psychogenic conditions?

- (b) If organic, is the cause related to either (1) the peripheral vestibular system, (2) central neurological causes or (3) systemic causes?

I. Peripheral Vestibular causes

The Table below lists the various peripheral aetiologies of vertigo.²

1. Peripheral vestibulopathy — labyrinthitis, vestibular neuronitis, acute and recurrent peripheral vestibulopathy.
2. 'Benign' positional vertigo.
3. Vestibulotoxic drug-induced vertigo.
4. Meniere's syndrome.
5. Others — cupulolithiasis, otosclerosis, infections, trauma and ischaemia.

Those commonly seen in the elderly include drug induced vertigo, otosclerosis, cupulolithiasis and recurrent peripheral vestibulopathy.³ The latter is of uncertain aetiology and is a convenient classification for elderly with vertigo of unknown peripheral cause. Possibly this may be related to the ageing of the peripheral vestibular apparatus which is associated with degeneration of the sensory epithelium, deposition of lipofuscin, microfractures of the otic capsule and mineralisation of the cupula.⁴

II. Central neurological causes

In the elderly, dizziness is often produced by vertebrobasilar insufficiency and carotid atherosclerosis. Disequilibrium also occurs in frontal lobe disease, cerebellar infarction and Parkinson's disease.⁵ Carcinomatous lesions in the elderly may be associated with secondaries to the cerebellopontine angle or their remote effects on the brainstem, leading to vertigo.

Senior Registrar
Dept of Rehabilitation Medicine,
Tan Tock Seng Hospital

Vertebrobasilar arterial disease

Vertigo may be the only symptom of transient brainstem ischaemia in about 20% of cases.¹ Common signs and symptoms of brainstem ischaemia can be absent in between attacks of TIA but careful examination during or after an attack of vertigo may reveal subtle signs such as mild Horner's syndrome, internuclear ophthalmoplegia, vertical nystagmus and hyperreflexia. Fisher found that in most instances, vertigo from brainstem ischaemia is associated with other evidence of brainstem dysfunction. He also mentioned that if dizziness or vertigo recurs after six weeks without other brain-stem signs, the aetiology is most likely not related to vertebroarterial insufficiency.⁶

Carotid artery circulation in the dizzy elderly

Apart from vertebrobasilar disease, the carotid artery circulation is often compromised in the elderly. Weinberger et al studied the haemodynamics of the carotid-artery circulation in the dizzy elderly by noninvasive carotid-artery tests. They found that 21 out of the 101 patients (whose chief complaint was that of dizziness) had a haemodynamically significant obstruction to the flow of the carotid artery.⁷

Syndrome of primary orthostatic cerebral ischaemia

Studies from the Mayo Clinic revealed the interesting syndrome of primary orthostatic cerebral ischaemia in the elderly.⁸ This occurred in almost one-third of the 74 patients who had bypass surgery done for the carotid system. These patients were noted to have (a) vague symptoms of dizziness only on standing up, (b) no significant drop of blood pressure to account for their symptoms, (c) marked drop of cerebral circulation pressure on standing as shown by ophthalmodynamometry, (d) angiographic evidence of widespread atherosclerotic disease in the carotid circulation and (e) dramatic improvement in symptoms after carotid artery bypass. It is not known whether this syndrome is due to an effect on the autonomic regulation of cerebral blood flow.

Dizziness associated with disequilibrium

In some elderly patients, dizziness may be described as a form of imbalance which

occurs during walking or turning. This disequilibrium sensation commonly occurs in frontal lobe disease associated with senile dementia or cerebral infarction. Parkinson's disease and cerebellar strokes without brainstem involvement may also be responsible for some of these cases. In addition, this type of dizziness may be due to the syndrome of **Multiple Sensory Deficits** which is commonly seen in the elderly. In Drachman's series, multiple sensory deficits accounted for 13% of his dizzy patients.⁹ There is no dizziness when lying, sitting or standing up but the complaint arises during walking or turning. As the name implies, the dizziness arises out of imbalance of various sensory inputs during walking. These sensory losses can arise from visual defects such as cataracts, hearing and vestibular deficits, peripheral neuropathy with proprioceptive loss and cervical spondylosis. In the latter condition, ageing of the Type I mechanoreceptors located in the cervical joints can lead to unsteadiness during walking because these mechanoreceptors contribute significantly to static postural sensation (sense of balance) and cervical kinaesthesia (awareness of head and neck movement).¹⁰

In summary, dizziness may be produced by both peripheral vestibular and central neurological causes. Of these central causes, the most common is that of vertebrobasilar or carotid artery disease. Multiple sensory deficits associated with the central nervous system can further aggravate dizziness especially on walking. In the evaluation of the dizzy elderly, the primary care physician must also consider the various systemic factors that can affect the ageing brain.

III. Systemic Causes of Vertigo and Dizziness

Systemic disorders causing dizziness in the elderly are commonly due to drug ingestion, postural hypotension, uncontrolled hypertension and anaemia.

Elderly patients often develop dizziness from multiple drug therapy. Among such agents are the aminoglycosides which produce dose-related irreversible damage to the vestibular cells. In contrast many other drugs such as antihypertensives, hypnotics and tranquilisers, can cause widespread reversible central effects which subside when the medication is stopped. Drugs to control dizziness often lead to drowsiness and the resulting

unsteadiness may be interpreted as a dizzy sensation.

Postural hypotension occurs in about 20% of elderly patients.¹¹ The majority of patients are asymptomatic and the most common symptom is that of dizziness. Multiple precipitating factors are common in these patients but the underlying basic mechanism is often related to the ageing autonomic nervous system and peripheral arterial wall rigidity associated with supine hypertension.¹²

Diabetes often produces dizziness from overtreatment but this can also be due to postural hypotension associated with diabetes mellitus. Hypothyroidism needs to be excluded in the elderly patient with unexplained vertigo. Hypothyroidism may be associated with peripheral vestibular disease and also predisposes to the rapid development of generalised atherosclerosis.

IV. Psychogenic Dizziness

This should only be considered when the preceding peripheral and central neurological causes and systemic disorders are excluded. Two types of dizziness can occur in patients with functional disorders.¹

- (a) The first type comprises the hyperventilation syndrome which can be brought on after voluntary hyperventilation for three minutes. This condition is often associated with acute emotional states such as fear and anxiety.
- (b) The second type of functional dizziness is more vague with no acceptable pathophysiological explanation. This form of functional vertigo or dizziness is frequently perceived as a turning sensation inside the head or a rocking sensation of the whole body.¹³ The dizziness is often present continuously in the waking hours and is associated with other functional symptoms associated with anxiety or depression.

In the elderly the second form of psychogenic dizziness is more common. Psychotropic medication to control the underlying psychiatric illness may further aggravate the dizziness. Sometimes an initial episode of organic vertigo can produce subsequent reactive depression or anxiety resulting in psychogenic dizziness.

Management of the Dizzy Elderly

Dizziness in the elderly is the final common pathway of many medical conditions. Cerebrovascular disease involving both the vertebral and carotid circulation is a common cause for geriatric dizziness. Unfortunately no active therapy can be carried out except carotid bypass surgery which is associated with unnecessary morbidity in the elderly. On this background of impaired cerebral circulation, systemic disorders or peripheral vestibular conditions can worsen the dizziness. Systemic causes such as postural hypotension, hypertension; cardiac arrhythmias and anaemia may be amenable to medical treatment. Cerebellar haemorrhage can present as acute severe vertigo and this is highly responsive to neurosurgical intervention. Elderly patients with multiple sensory deficits will benefit from the correction of these deficits such as the removal of cataracts, the use of hearing aids, wearing of cervical collar for cervical spondylosis and rehabilitative exercises for those with gait difficulties. The use of quadsticks or rails not only provides mechanical support but also increases the amount of proprioceptive information reaching the vestibular nucleus.

Where there is a purely vestibular lesion, vestibular sedative drugs may be useful but in those with a central pathology these drugs may not be helpful.¹⁴ Drug therapy for the dizzy elderly is often complicated by the sedative and anticholinergic side-effects, which may be more intolerable to the elderly than the complaint of dizziness itself. Thus it is necessary to start with the proper drugs at low doses and increase them slowly. Preferably a short stay in the hospital is justified as most of these drugs cause sedation in the elderly.

For mild attacks in the outpatient, antihistamines such as dimenhydrinate, cyclizine and meclizine can be started for a short period. Their beneficial effect appears to be related to their central anticholinergic action.¹ Unfortunately, the dizzy elderly with limited brain reserves may be tipped into acute confusional states by anticholinergic drugs as their choline levels in the brain are already low. Promethazine is an effective antiveriginous drug because it has both antihistamine and antiemetic effects on the

nervous system. Diazepam in small doses may be added to the treatment regime as it can act centrally to reduce the resting frequencies in the vestibular system. Pure antiemetics such as prochlorperazine are not so effective for vertigo but can be tried as adjunct therapy to relieve any associated vomiting.

Vestibular exercises designed by Cooksey can be tried in those who do not respond to vestibular sedatives.¹⁵ The patients are taught to perform a series of eye, head, neck and body exercises to induce mild vertigo so that they can develop tolerance and adaptation to future episodes of vertigo.

Finally, in patients with diffuse cerebral arteriosclerosis, the use of cerebral vasodilators is a questionable issue. When vasodilators were first used, senility was thought to be the result of decreased cerebral blood flow. But now the concepts of senility have been changed. Senile Dementia of the Alzheimer's type (SDAT) is a primary neuronal degenerative condition with neurotransmitter deficits. In contrast, Multi-infarct Dementia (MID) is a vascular condition; the initiating cause is a decrease in blood supply causing parenchymatous changes and decreased metabolic demands which in turn decreases the blood supply further.¹⁶ The vessels in multi-infarct dementia are often sclerosed and they show a paradoxical response of moving inwards rather than outwards when the dilatory stimulus of carbon dioxide is given.¹⁷ Therefore, vasodilators are not useful for elderly patients with badly sclerosed blood vessels. In SDAT, the vessels show a greater response to the vasodilatory stimulus of carbon dioxide. Theoretically, vasodilators should be beneficial for these patients. But any increase in cerebral blood flow will only create a state of luxury perfusion because the primary event here is parenchymal degeneration with decrease in metabolic demands and blood supply.¹⁸ Thus the concept of vasodilators has been changed in favour of their metabolic-enhancing activities. The primary effect of the so-called 'vasodilators' is to improve cerebral metabolism leading to a secondary increase in cerebral blood flow.¹⁶ In the States, ergoloid mesylates have been used extensively for elderly patients with cognitive decline and non-specific dizziness probably from cerebral

arteriosclerosis. Despite their cost, these drugs may be worth a trial as they do not have significant side-effects in the elderly.

Conclusion

Dizziness is a complex medical problem especially when it occurs in the elderly. The management of the dizzy elderly often reflects our negative ageist attitudes: most of the cases are easily labelled as vascular insufficiency or primary degenerative conditions. The danger of this straightforward diagnosis is that treatable systemic conditions may be missed. Dizziness, if left untreated in the elderly, will lead to functional and social deprivation. Eventually the purely medical problem of dizziness may convert the elderly into a social invalid by the so-called process of 'socialisation of medical problems'.

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FIRST INTERNATIONAL CONGRESS IN ORAL CANCER 11 — 13TH NOVEMBER, 1987 VENUE: SINGAPORE

The above Congress is being organized by the Department of Oral and Maxillofacial Surgery of the National University of Singapore in conjunction with the Division of Oral and Maxillofacial Surgery, The Johns Hopkins Medical Institution, Baltimore, U.S.A. The Congress is co-sponsored by the World Health Organization and International Union Against Cancer (Geneva). The Scientific Programme includes Guest Lectures, Symposia, Workshops and Free Papers. Special features include Reconstructive and Microvascular Surgery.

Invited overseas speakers include Professor Harrison, Mr O. H. Shaheen (Royal National Throat Hospital, U.K.), Professor Westbury (Royal Marsden Hospital, U.K.), D. Jaques (The Johns Hopkins Medical Institution, U.S.A.), J. D. Langdon (King's College Hospital, U.K.), Dr Robert E. Marx (Jackson Memorial Hospital, Miami, U.S.A.), Professor Hugo Obwegeser (Switzerland), Dr Phillip J. Boyne (Loma Linda University, California, U.S.A.), Professor P.I. Branemark (Sweden), and Professor William Panje (University of Chicago, U.S.A.).

Please contact:

**Dr N. Ravindranathan, Organising Secretary
First International Congress in Oral Cancer
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National University Hospital
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HOME STUDY SECTION

X-RAY QUIZ

Contributed by Dr. K. Param MBBS (S'pore), DMRD (Liv), FRCR (UK)



Figure 1

A 64 year old Chinese male presented with an history of haematuria and diabetes mellitus. Fig. 1 is the control radiograph for an IVU examination.

1) What abnormalities can you make out from this control radiograph?

ANSWERS



Figure 2

DIAGNOSIS

- 1) Horseshoe kidney with left staghorn calculus and hydronephrosis.
- 2) Bilateral bladder calculi.

DISCUSSION

The axes of both kidneys are abnormal with the lower poles displaced medially due to the fusion. The isthmus between the lower poles is difficult to appreciate because of the overlying spine. The renal pelvis and ureter are prone to stasis, stone formation and obstruction because of the abnormal course of the ureter over the fused poles.

Horseshoe kidneys are also more prone to injury than normal kidneys. There is also a higher incidence of other genito urinary anomalies. It has been suggested that horseshoe kidneys have a higher incidence of Wilms' tumour.

HOME STUDY SECTION

ECG QUIZ

Contributed by Dr. Baldev Singh, MBBS (S'pore), M. Med (Int Med), MRCP (UK)

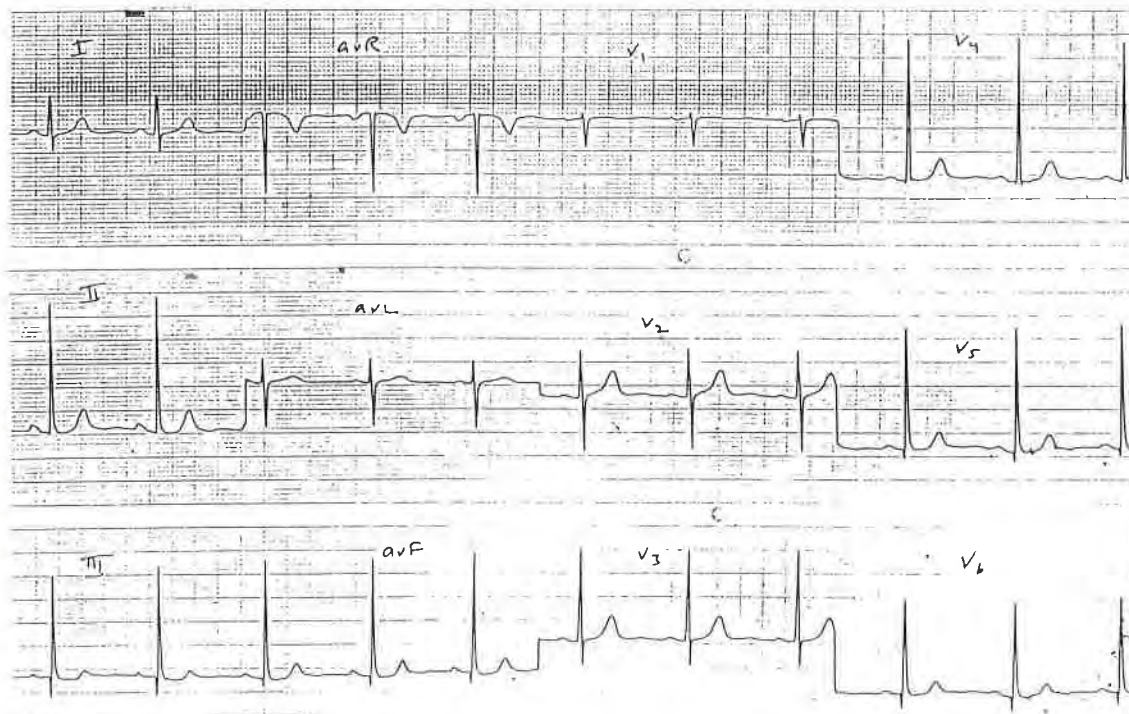
Study the following ECG which belongs to a 52-year-old Eurasian female who has an approximately 20-year history of hypertension which has currently been well controlled with betablocker/diuretic combination.

Question 1: Are there any significant abnormalities in the ECG?

At one of her usual outpatient visits, she complains of some mild chest pain. This occurs sometimes at rest and sometimes when she bends down to sweep the floor. She admits to being rather anxious sometimes. She is not obese, does not smoke and cholesterol when checked 3 months ago was 197 mg%.

Question 2: Your next most appropriate response would be to:

- a) Assure her that the pain is probably musculoskeletal and prescribe Ponstan.
- b) Prescribe GTN and ask her to use it and report back to you on its effect.
- c) Advise her to try to relax and go for brisk walks in the evening and prescribe a tranquilizer.
- d) Refer her for an exercise stress test.



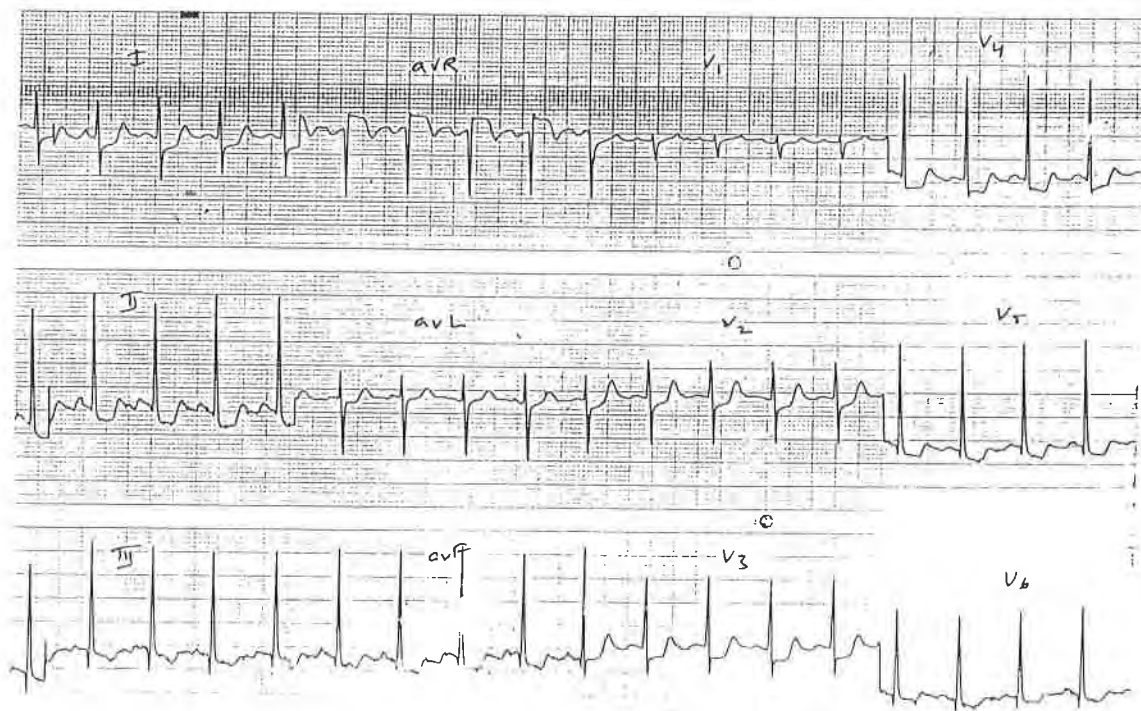
ANSWERS

1. The resting ECG is within normal limits. The tall R waves in some leads are a reflection of the thin chest wall.
2. The most appropriate response in this instance is to send the patient for an exercise stress test, especially since facilities are readily available. Furthermore, even though there are several factors here mitigating against coronary artery disease, e.g. female sex, absence of risk factors like smoking, etc. she does have one powerful long standing risk factor — namely hypertension. Also chest pain is a late symptom of coronary artery disease and betablocker therapy for hypertension may further delay appearance of symptoms.

A therapeutic trial of GTN is outmoded and has little merit. Patient's description of this response is highly unreliable and even if positive one has to proceed to exercise stress testing to assess severity of disease.

An exercise stress test was done in this patient and as shown on the following ECG, after only about 3 minutes on the Bruce Protocol the patient has significant ST depression and chest pain at a heart rate of less than 100/min. It took 9 minutes for the ECG to return to its pretest pattern. This case further illustrates that a normal resting ECG has little diagnostic value when it comes to coronary artery disease.

Coronary arteriograms were performed in this patient and this revealed an almost 90% stenosis of the left main stem artery with a dominant left circumflex artery. She underwent coronary artery bypass graft surgery.



NEWS FROM THE COUNCIL

1. Relocation of the College Office

The office of the College of General Practitioners Singapore has been relocated at the College of Medicine Building, Level 1 (Right Wing), 16 College Road, Singapore 0316 as from Monday, 16 March 1987. The telephone number remains the same i.e. 2230606.

2. Academic Recognition of the Discipline of Family Medicine in the National University of Singapore

A joint memorandum on the above subject was submitted by the College of General Practitioners Singapore and the Department of Social Medicine and Public Health, to the Dean, Faculty of Medicine, National University of Singapore in December 1986.

In the preamble of that memorandum, the terms "General Practice" and "Family Medicine" were defined as follows:

"Although the terms "General Practice" and "Family Medicine" are not exactly synonymous, they have much in common and the practitioners concerned are often engaged in both professional fields at the same time.

"As a discipline, the preferred term "Family Medicine" (FM) will be used in this memorandum to emphasize the importance and relevance of family-based medical practice in the delivery of health care. A practitioner, on the other hand is better known as a General Practitioner (GP), and will be referred to as such."

The memorandum has since been accepted in principle by the Senate of the National University of Singapore and the Ministry of Health.

3. Change of Name

The name of the Department of Social Medicine and Public Health has been changed to DEPARTMENT OF COMMUNITY, OCCUPATIONAL AND FAMILY MEDICINE, with effect from 13 February 1987.

4. Continuing Medical Education Programme

The Continuing Medical Education Committee of the College is presently running a Family Practice, Paediatrics and Obstetrics & Gynaecology Module. The programme is as follows:-

Date	Topic	Speaker	Moderator
27.2.87	Unusual Presentations of Common Diseases seen in Family Practice	Dr Lee Suan Yew	Dr Wong Heck Sing
6.3.87	Premarital Screening and Counselling	Dr Victor Wee Sip Leong	Dr Soh Cheow Beng
13.3.87	The Handicapped Child and Social Services	Dr Koh Eng Kheng	Dr Goh Lee Gan
20.3.87	Abdominal Pain in Childhood	Dr Quak Seng Hock	Dr Omar bin Saleh Talib
27.3.87	The Pale Child	Dr Tan Cheng Lim	Dr Henry Yeo Peng Hock
3.4.87	Accidents and Poisoning in Childhood	Prof Chao Tzee Cheng	Dr Hia Kwee Yang

10.4.87	Adolescent Gynaecology	Prof Dramusic	Dr Moti H Vaswani
17.4.87	NO SESSION — PUBLIC HOLIDAY		
24.4.87	The Menopause	Prof T G McCarthy	Dr Alfred Loh Wee Tiong
1.5.87	NO SESSION — PUBLIC HOLIDAY		
8.5.87	Nutrition in Infancy and Childhood	Dr Tan Keng Wee	Dr Lim Kim Leong

5. New Members

The following have been accepted by Council into the membership of the College during the months of January/March 1987:

Dr Tan Soo Liang	— Ordinary Membership
Dr Nagamuttu Ravindranathan	— Associate Membership



Mr. Toh Kian Chui gets a Certificate of Appreciation.....

.....and a section of the audience.



Guests drink a toast to the College.....



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You are invited to submit original papers on various areas of General Practice and Family Medicine, especially those related to the Conference and session themes, for presentation in:

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**Abstracts of your papers should be submitted
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For registration details and further information of the Conference, and Guideline for Preparation and Submission of Abstracts, please contact your local College of General Practitioners/Family Medicine or write to:



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