The Singapore Family Physician

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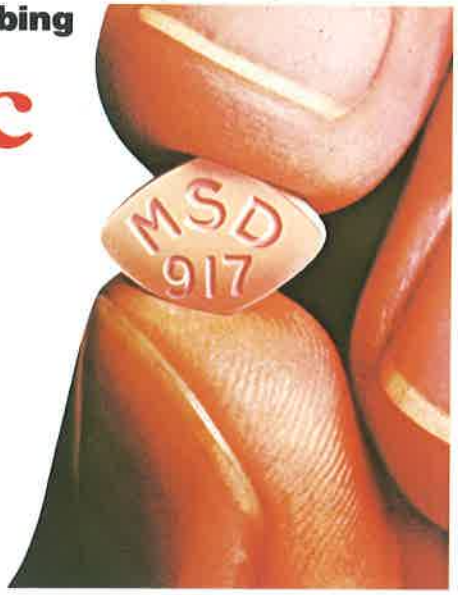

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CONTENTS

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[1]Tanner, M. A. *et alii*, Efficacy of cimetidine and tri-potassium dicitrato bismuthate (De-Nol) in chronic gastric ulceration. *Med. J. Aust.*, 1979, 1:1.
[2]Coughlin, G. P., *et alii*, The effect of tri-potassium di-citrato bismuthate (De-Nol) on the healing of chronic duodenal ulcers. *Med. J. Aust.*, 1977, 1:294.
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"The drug of choice for benign gastric and duodenal ulcers is tri-potassium di-citrato bismuthate".

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EDITORIAL

THE ETHICS OF TERMINAL CARE

It has been observed that with our advances in medical technology, death is no longer tolerated as a natural process (1). There are also higher expectations of a cure. Doctors, too, tend to be obsessed with cure that they run a risk of forgetting how to comfort.

The management of the dying patient is not taught in medical school even though there are many psychological, social, economic, ethical and philosophical problems involved. But death is a reality which all of us, doctors as well as patients, must grapple with. As our population becomes more aged, it is inevitable that a greater proportion of our medical practice will comprise of patients who are terminally ill or incurably ill.

An article in one of our newspapers a few months ago reported the decision of a patient dying from cancer to sue his physician for not disclosing the true nature of the former's illness (2). Although such litigation is a peculiarity of the American medical scene, we need to recognise that times are changing and as doctors, we will have to review our attitudes and the ethical principles on which we base our practice of medical care.

Dr Yeoh Ghim Seng, an eminent member of our profession, has also raised the question of whether doctors should indulge in "meddle" some medicine" in his address to the 15th Singapore Medical Association National Convention (3). The process of dying in a modern hospital is far from being a simple matter. Besides medical factors, there are other philosophical, social and economic considerations which must be taken into account.

ETHICAL PRINCIPLES

The traditional principle which underlies all medical decisions is the Hippocratic ethic of trying to do what will benefit the patient (4). It is this principle that restrains doctors from divulging the whole and unwholesome truth to a dying patient. Dr Lester Karafin pointed out that the truth is often harsh and even harmful as it can leave a person devoid of hope and open to despair (5).

However, this principle is in direct conflict with another ethical principle that it is a moral right for patients to have the truth and to have the freedom to determine the course of action irrespective of the consequences (4). This is clearly demonstrated by the case of the patient suing the doctor for not disclosing the true nature of the illness (2).

Another ethical principle involved is the utilitarian principle that action is right if it produces the greatest net good (4). For example, failure to inform a patient of his impending death may deprive him of the opportunity to put his business affairs in order. On the other hand, such a disclosure may aggravate the psychological distress of the patient's wife who is suffering from depression. And making medical decisions on the basis of social consequences may result in a situation where the patient's interests are sacrificed for the good of society or others in that society.

As doctors we must be aware of the basis of the ethical principle that underlies our management and we must also be sensitive to the fact that the patient, relatives and hospital administrators may subscribe to very different philosophies.

It is also very important to clarify the difference between letting a patient die who is inevitably dying and a patient who may live on indefinitely but with a life which is judged to be of poor quality (4). In the first case, one is simply prolonging death. In the second case, one is prolonging life even though it may be a life which is judged by others to be of "poor quality".

PATIENTS' RIGHTS:

In a consumer-orientated society, there is a confusion about the rights of a patient as a consumer and his rights as a human being who is sick. As a consumer, he obviously has the right to gather as much information as he can so as to be able to choose and assess the quality of the service he is buying. This presupposes that health is a commodity for sale much like the many other goods and services that are available in our modern society. Ironically, such an attitude dehumanises the patient himself and deprives him of the right to be treated as a human being and not as an object with a problem.

In the United States, the President's Commission for the Study of Ethical Problems in Medicine and Biochemical and Behavioral Research concluded that health care is a special kind of service different from the other services of the marketplace because it helps in the relief of suffering, the prevention of premature death and the restoration of function. Health care is also characterised by the demonstration of mutual empathy and compassion (6).

The fundamental right of the patient is therefore to be treated as a human being with respect and dignity. This right requires that he be consulted about the medical procedures that his body is being subjected to and that he has the freedom to choose. For example, Albert Einstein was reported to have replied, "let it burst" when he was told that he had an aortic aneurysm and that it might burst. He died several years later at the age of 75 years when the aneurysm ruptured and he refused surgery (7).

However, in practice, a number of factors may render it difficult for the patient to participate in such decision making. The lack of competence, in the view of Wanzer et al, is a major obstacle under circumstances where the patient's judgment is reduced by disease, pain, drugs and other conditions affecting the mental state. Wanzer et al felt that a longstanding relationship between the patient and the physician would be most helpful in such cases. But they observed that many adults have no personal physician and that terminally ill patients are often cared for by specialists or hospital doctors who do not know what the patient would have wished (8).

Karafin felt that many patients today know too much or think they do. He debunked the belief that the more a patient knows, the better off he is. He contended that the patient's mind may be so cluttered with unrelated data that his perspective becomes clouded thus making it impossible for the patient to make an objective decision about the choice of treatment. He gave the example of a young woman who refused mammography because she had read that woman under 40 should not undergo mammography and died from breast cancer two years later (5).

The basic right of a patient is therefore not a matter of having access to information but the capacity to choose and decide. In a patient who is dying from a terminal or incurable disease, this right assumes even greater importance. The problem is not what one should tell a dying patient but how to help him make full use of a life that is fast running out.

A 78-year-old patient dying from colonic cancer and who was placed on a ventilator against his will left this message to his doctors: "Death is not the enemy, doctor, inhumanity is!" (1).

THE PHYSICIAN'S RESPONSIBILITIES:

In the management of a dying patient, the doctor is faced with the dilemma of letting the patient die with dignity on one hand, and preserving life even at the jaws of death on the other. Dr John Flexner believed that we must strive to preserve life with all our technology. At the same time, it is also important to know when to back off and to realise that we have reached the limit of our capabilities. He felt that such a decision should not be left to the physician alone but should involve the patient, their families and the other members of the care-giving team (1).

The doctor's first obligation is obviously to the patient. However, Wanzer et al pointed out that many other factors may influence our decision making whether consciously or unconsciously. Firstly, doctors may be influenced by their own personal values and other unconscious motivations such as a tendency to equate a patient's death with professional failure or unrealistic expectations. Secondly, the fear of legal liability may take priority over humane and compassionate care. Thirdly, the doctor may be influenced by economic considerations such as the cost to the family and society (8). Flexner drew attention to the stress

on the families resulting from the attrition of prolonged and debilitating illnessess (1).

It is important to be aware of these considerations if one is to be able to make a decision in the best interest of the patient.

In general practice, we are fortunate not to have to make such controversial and emotive decisions as when to abandon resuscitative measures for a dying patient. Nevertheless, general practitioners are often approached for advice by relatives of such patients. At other times, the dying patient is "abandoned" by the hospital and has to turn to the general practitioner for comfort and support.

We will also encounter the problem of helping a patient with an incurable or terminal disease cope with his illness and to make the best use of the rest of his life.

The ethical problems of terminal care are complex and controversial and there is no simple solution. However, better communication must be the cornerstone of such management. In this regard, the general practitioner may perhaps play a useful role. ■

P. K.

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Views in the Editorial are not necessarily the official views of the College.

CHANGE OF PRINTER

We are pleased to announce that we have appointed Mr Bennett Austin of Bencalli Services to be our printers for the College Journal with effect from this issue.

We would like to thank Eurasia Press for services rendered in the publication of the previous issues of the Singapore Family Physician.

Editorial Board

ADDRESS

FAMILY MEDICINE IN THE EIGHTIES

Dr Victor L Fernandez
FCGPS, MCGPM

A Conference on Family Medicine in the second most populous country in the world is an important event. I consider it a privilege to speak at this meeting coming from one of the newest and smallest nations of the world to one of the largest and most ancient. My visit to India is also of personal significance as it is my first visit to the land of my forefathers. I bring with me the greetings of the President and Council of the College of General Practitioners of Singapore. I bring also the greetings and best wishes of the President-Elect of WONCA, Dr M K Rajakumar.

India hosted a World Conference of Family Physicians in 1968 and I look forward to a future World Conference in this great city. The IMA College is a leading member of the World Organisation and has an important role in it.

The relevance of General Family Practice to developing countries has been forcefully emphasised by the proclamation of "Health For All By The Year 2000" in the Declaration of Alma Ata. This target brings hope of a sustained effort to improve the conditions of health of the ordinary people of our countries. The key to modern primary health care is the creation of a new type of well-trained and motivated physician to understand Family Practice in the context of Health 2000. I must straightaway express my dismay that throughout this great nation with numerous Faculties of Medicine, there is not a single department of Family Medicine. I call upon the distinguished leaders of the medical profession in my audience to press for the establishment of Chairs in Family Medicine/Primary Care in every Faculty of Medicine in this country. Surely we must not allow the petty rivalries of guilds to prevent the proper teaching of our future doctors in the discipline of primary care. I quote from the Will Pickle's Lecture delivered in Kuala Lumpur by the President - Elect of WONCA:

> "The medical challenges that we face and the health problems of our people are such that it will tax us to the utmost and test to the fullest extent our skills and knowledge. It is foolish to be inhibited by fading boundaries of traditional medicine and by out-dated beliefs. It is the mentality of guilds to resist new disciplines and, unworthy though it is, this mentality is common in medical history".

The discipline of family medicine is a new development in medicine. It has broadened the perspective of medical practice and made the physician more responsive to the needs of the community. Whereas medicine has traditionally been concerned with the treatment of disease, family medicine to-day has shifted the emphasis to the maintenance of health and the quality of life. Increasing sub-specialization and fragmentation of medicine have isolated the physician and alienated the community. While technical and scientific advances have led to better methods of detection and treatment of diseases, actual medical care has become impersonal and costly. While hospital-orientated medicine is effective in its response to immediate demands of the seriously ill, there is an overwhelming demand for primary, continuing, personal health care that the hospital is unable to provide.

The swinging of the pendulum has been the result of several specific factors:

Address delivered at the XV Mid Year Academic Seminar & International Conference on Family Medicine, I.M.A. College of General Practitioners, New Delhi on 18 August 1984

(i) Specialization by disease or organs was producing a depersonalised hospital-orientated and fragmented type of medical care.

(ii) The public now wants well-trained family doctors with empathy and understanding — trained in modern medicine but with the personal orientation that characterizes the family doctor.

(iii) Governments all around the world have become increasingly concerned with the rising costs of treatment-orientated hospital care. They see the greater emphasis on out-of-hospital ambulatory care, preventive medicine — health care appraisal, and health-maintenance as a means of better controlling the costs of health care delivery.

(iv) Most important of all, was the foundation of Colleges and Academies of General Practice/Family Medicine around the world in the 60's and 70's which have provided for new and improved training programmes, the setting and assessment of improved standards and the promotion of family medicine as a new and vital medical discipline.

It is now universally accepted that Family Medicine has become a specialty in its own right, possessing a unique combination of elements of knowledge and skills from the broad field of medicine. As a medical discipline it has been defined in educational terms, so that it can now be taught as a distinct entity and not in bits and pieces of existing medical disciplines.

UNDERGRADUATE EDUCATION

Dr Wesley Fabb in his Sreenivasan Oration in 1982 said: "Experience the World over supports the view that if we are to train family doctors who can meet the community's needs, there needs to be initial exposure to the orientation, concepts and philosophy of family medicine at an undergraduate level, followed by specific vocational training for general family practice at a post-graduate level. To achieve this, undergraduate departments of family medicine and a post-graduate programme of training are needed.

A strong undergraduate department will put students in touch with the conceptional basis of family medicine, the family and community orientation of the family physician, the philosophy of general family practice, its unique process of continuing care of patients and families in their community environment, and its special emphasis on prevention, health promotion and health education".

While university departments or divisions of family medicine have been established in most universities in the developed countries, paradoxically few departments of family medicine have been established in developing countries who need it most; there are none in SEA or even in a large country like India. We therefore need leaders, both political and health planners, who have the ability to recognize the priorities of medical education on the basis of patient-need and the power to bring about a balance between the self-interests of disciplines and the general need for a dynamic undergraduate medical curriculum. Family Medicine must be recognised and accepted as a part of the undergraduate curriculum for therein lies the life-blood that flows on to graduate training programmes.

POST-GRADUATE EDUCATION

The training of family physicians at the graduate level is now an international activity and is a responsibility that is shared by Governments, the Universities and the Colleges or Academies of Family Medicine. The latter sets the standards, grants approval for the training programmes, conducts the examinations and awards certification. The Government or the University establishes and maintains these programmes, i.e. funding, selection of teachers and recruitment of students and the provision of suitable resources for the training of family physicians. These training programmes are based on educational objectives with the ability to describe in behavioural terms what the end-product of a training programme in family medicine should be capable of doing. In addition, these educational objectives have been translated into a training curriculum; and no discipline other than family medicine has developed an examination designed to measure cognitive and affective skills, in addition to factual knowledge. Training programmes for family medicine are usually designed to meet the needs of the particular country where it is developed. It is a matter of regret that there are several developing countries where training programmes are still not available. In my own country, in spite of its stage of development and relative affluence, lack of public funding

has delayed the development of a vocational training programme and only now is our College making progress with the Ministry of Health.

CONTINUING MEDICAL EDUCATION

Formal training in general practice/Family medicine itself is essential and it must be clear that the good doctor never finishes training; the undergraduate and the graduate must be inculcated with the attitude towards continuing education which will last for the whole of his professional life. It is a life-long process for all physicians. Knowledge, skills and attitudes acquired during training should be maintained and enhanced through regular programmes of Continuing Medical Education.

Education — both at the undergraduate and post-graduate level therefore is the key — the fulcrum on which the future of family medicine turns. Through education — vocational and continuing medical education — we should now provide a satisfactory caring service and provide it soon. We should lead ourselves to clinical standards with research into Family Medicine, and through professional self-control retain clinical and professional freedom. Failure to do so in the 1980's could result in second class medical citizenship, permanent inferiority, and external control by Government.

HEALTH FOR ALL – MYTH OR REALITY?

In the last few years, the issue of primary health care has emerged in the centre of the debate on health planning. The target "Health for All by the Year 2000" has been proclaimed. The likelihood is that this target will not be achieved as health involves economic and social dimensions, which in turn involve political decision. The Declaration of Alma Ata not only makes health a fundamental issue of social justice, but also suggests that the use of traditional healers and traditional medicine are reasonable means of achieving it. This absurd disparity in objectives and means has enabled developing countries to accept its objectives even when they lack political will or capacity to bring these about.

Primary Health Care should not be just a minimal health care activity, planned by health officials and delivered by lay health workers and even traditional healers. The expectations of people are high and they will if necessary bypass inferior health providers and trek to the cities for their medical care. The aim should be to develop primary health care teams led by well-trained physicians who are expert in their field, can function as a unit and deliver health care of a very high standard. Only then can the confidence of the community be won.

We must encourage physicians to work in rural areas where they are needed most. At the present time there are no rewards for physicians in the rural areas, neither financial inducements nor career advancement in government service. Is it any wonder that bright young doctors quickly recognize that politicians do not want to be taken seriously when they say that rural health is a top priority but do not provide the funds to make that possible? Politicians even promote the use of traditional medicine and urge their incorporation into modern medical practice. Such a development would open wide the doors to charlatanry through the introduction of unknown, unidentified and untested medications and methods into medical practice.

Ultimately, success or failure depends on the availability of funds. Good Primary Health care is not cheap, but it is the most cost-effective. When politicians promise top priority for rural health, will they pledge the necessary funds to go with their promises? They surely will if only they realize that health is the most precious possession next to life itself and that there can be no development without health.

Notwithstanding these reservations, primary health care objectives of the Declaration of Alma Ata have the potential for much good in this region. It is up to us, general practitioners/-family physicians — we can help to determine the shape of the primary health care delivery system and to train a new generation of physicians to deliver this care. The Colleges and Academies of General Practitioners/Family Physicians can play a vital role in determining the shape and clinical standards of general practice/family medicine as a vital part of the movement to achieve health for all.

Our continuing challenge is to command the support of the public, the profession, medical educators and our government by demonstrating that doctors well trained in family medicine, working with other health professionals have a distinct and incomparable contribution to make to the welfare of the nation's health. ■

ORIGINAL PAPER

COST-EFFECTIVENESS OF ECGs & EXERCISE ECGs

Dr B K Lim
MBBS. (Sydney). FRCGP (UK). MCGP (M'sia).
Dip. BLIM (USA)

INTRODUCTION

In Singapore, cardiovascular diseases are responsible for most of the morbidity and mortality suffered by the population at large.

ECGs and Double Master's Tests have in many years been relied upon for the evaluation of cardiac diseases, especially coronary heart diseases. The last few years saw the Treadmill Stress Test gradually replacing the Double Master's Test.

In recent years, the ever increasing cost of ECGs, especially Exercise ECGs, raises the question of cost-effectiveness in Health Screening of Corporate Executives and Life Insurance Applicants, who on the whole are asymptomatic and without medical histories. The same question applies to patients. Should medical practitioners subject their patients to routine ECGs and Exercise ECGs? Are these tests cost-effective to the patients? Or should medical practitioners carry out ECGs and Exercise ECGs only on patients with medical histories and clinical abnormalities especially cardiovascular impairments?

Medical Practitioners should ask questions such as:

(1) How valuable and how great is the contribution of ECGs and Exercise ECGs in General Health Screening?

(2) As a screening tool, does it really provide useful additional data which will help in the evaluation of the health of an individual or the management of his illness?

Level 09, Suite 901-902
American International Building
1, Robinson Road, Singapore 0104.

(3) When to call for ECGs, and when to call for Exercise ECGs?

(4) Is the Treadmill Stress Test more sensitive than the Double Master's Test?

(5) What are the factors that really matter, and what will determine the effectiveness of the exercise test?

(6) Is Exercise Testing dangerous, especially in persons who have suffered myocardial infarction?

PRESENT STUDY

The materials for this present study were taken from the files of the largest international life insurance company operating in Singapore and cover all life insurance applications with ECGs and Treadmill Stress Tests over a period of 3 years, from January 1981 to December 1983.

There are 531 cases but only 504 cases are studied in greater detail to form this report, as the other cases are found wanting in one or other technical aspects, such as poor standardisation, very irregular wavering baselines, negligible increase or no increase in heart rates after exercise and so on.

The author is fully aware that one swallow does not make a summer and recognises the inadequacy of the number of cases studied. This is however an on-going study and the present paper is only a preliminary report. It is a modest attempt to highlight certain points and to find some answers to the questions raised in the introductory paragraphs.

METHODS & MATERIALS

Each of the 504 cases has been reviewed for age, reason for the request for ECG and/or Treadmill Stress Test, medical history and examination findings, the result of the 12 lead ECG, and the result of the Treadmill Stress Test.

The ECGs and Treadmill Stress Tests come from different medical centres, and have been reported by different physicians. Therefore, for the purpose of this study, all tracings are personally reviewed by the author. Those cases which the author has some difference of opinion from that of the reporting physicians are left out from this study.

Table 1 shows the number of ECGs and Exercise ECGs carried out on asymptomatic individuals, and on individuals with medical histories and clinical impairments.

For the various ages, the 362 asymptomatic cases have been divided into eleven 5 year age groups. The results and percentage yield of the tests are shown in Table 2. Table 3 documents the detected impairments in ECGs of the asymptomatic cases and Table 4 shows the results of Exercise ECGs.

The results and percentage yield of ECGs and Exercise ECGs performed because of medical indications in the 142 cases are recorded in Table 5 and Table 6. Table 7 documents the detected impairments in ECGs with medical indications, and Table 8 documents impairments seen in the Exercise ECGs with medical indications.

Table 9 shows the Increase in Heart Rates over Resting Heart Rates of the 140 cases with Exercise ECGs. The significance of attained Maximal Heart Rates during exercise and their results are found in Table 10.

RESULTS

Table 1 shows the number of ECGs and Exercise ECGs carried out on asymptomatic individuals, and on individuals with medical histories and clinical impairments.

TABLE 1

ECGs & EXERCISE ECGs
Study Groups

	ECGS	EXERCISE ECGS
Asymptomatic	314	48
Medically Indicated	50	92
TOTAL	364	140

TABLE 2

ECGs & EXERCISE ECGs OF ASYMPTOMATIC CASES
Usefulness — % Yield

AGE	ECGs			EXERCISE ECGs		
	Number	Useful	% Yield	Number	Useful	% Yield
16--20	1	—	—	—	—	—
21—25	5	—	—	—	—	—
26—30	29	—	—	8	—	—
31—35	68	1	1 5	7	—	—
36—40	61	1	1 6	9	—	—
41—45	70	8	11 4	9	—	—
46—50	37	1	2 7	9	—	—
51—55	31	4	12 9	1	—	—
56—60	10	1	10 0	—	—	—
61—65	2	—	—	4	—	—
66—70	—	—	—	1	—	—
ALL AGES	314	16	5 1	48	—	—

**USEFULNESS indicates discovery of extra pathology, or confirmation of absence of any pathological complication.*

From Table 2 it would seem that ECGs of asymptomatic cases are useful and yield results, mainly in the age groups 41-45, 46-50, 51-55 and 56-60. Of the 148 cases of ECGs in these groups, 14 ECGs or 9.5% reveal cardiac abnormalities in supposedly asymptomatic persons. There are 2 myocardial infarctions, 1 with A-V block, 2 with left axis deviations, 3 with complete RBBB, and 1 with PVC, as documented in Table 3. However, taking the total of 314 cases into consideration, the yield of 5.1% is not so good.

The results, as shown in Table 4, for Exercise ECGs of asymptomatic cases seem disappointing. Not a single of all the 48 Exercise ECGs performed showed any pathology. Although the Exercise ECGs are supposed to come from all age groups from 16-70, actually 85% of cases fall within ages 26-50. This may be a possible reason for the completely negative results of the Exercise ECGs in asymptomatic persons. Perhaps the number studied is too small to have the right proper sampling.

TABLE 3

ECGs OF ASYMPTOMATIC CASES
Detected Impairments

AGE	ECGs	IMPAIRMENTS
31—35	68	1 — Complete RBBB with Left Axis Deviation
36—40	61	1 — Complete RBBB
41—45	70	2 — Myocardial infarction 1 — Ischaemic changes 2 — T-wave inversions 1 — Left Axis Deviation 1 — Complete RBBB 1 — PVC
46—50	37	1 — T-wave inversions
51—55	31	1 — Left Axis Deviation 1 — A-V Block 2 — Complete RBBB
56—60	10	1 — T-wave inversions

Table 5 documents the results, usefulness and percentage yield of ECGs and Exercise ECGs for a whole list of 142 medically indicated cases. Three groups of medically indicated cases, viz: hypertension, septal defects and valvular diseases, and diabetes mellitus, have high percentage of abnormalities in their ECGs and/or Exercise ECGs.

Table 6 highlights specifically their results. Of the hypertensive group, 8 of 16 ECGs (50%), and 4 of 13 Exercise ECGs (31%), reveal pathology. Twenty percent (20%), 2 in 10 ECGs, and 25%, 3 in 12 Exercise ECGs in the group of septal defects and valvular diseases yield abnormalities. The diabetic group has 1 in 3 (33%) abnormal ECGs, and 3 in 5. (60%) abnormal Exercise ECGs. Not highlighted in Table 6 but easily noticeable in Table 5 is the positive indication for Exercise ECGs in cases of chest pain.

The detail documentation of impairments detected from medically indicated ECGs can be found in Table 7, and those of medically indicated Exercise ECGs in Table 8. The most common impairments are coronary ischaemic disease and coronary insufficiency, with a few left ventricular hypertrophies. It is important to note from Table 8 under "Tachycardia" that the Treadmill Stress Test in this case had only one single lead V5 recording. It was negative. Double Master's Test with multiple leads showed the same case to be positive.

TABLE 4

EXERCISE ECGs OF ASYMPTOMATIC CASES
Results

	ECGs	IMPAIRMENTS
16—70	48	Completely negative results

NOTE: 85% of cases fall within Age 26 — 50

Table 9 shows the increase in heart rates over resting heart rates. Of the total of 140 Exercise ECGs, 136 were exercised sufficiently to show an increase of heart rates over 60/min. 4 cases had an increase of 40-60/min. Table 9 does not seem to show that a small increase in heart rates over resting heart rates tends to mask pathology. It is noted in this series, that no case has an increase in heart rate of less than 40/min. Such an increase in heart rate is apparently sufficient to reveal pathology.

Table 10 records the attained maximal heart rates during exercise. It is an attempt to show the significance of actual maximal heart rates achieved. In this series, almost all cases are sufficiently exercised to attain 85% of the predicted maximum heart rates. The 2 cases with heart rates below 120/min. were on beta-blockers. Hence, no definite conclusion could be drawn from this Table 10. In fact in this series, those cases with attained maximal heart rates over 160/min seem to have less positive results.

DISCUSSION

Generally, the younger persons are most unlikely to suffer from degenerative cardiovascular diseases. Why then are they required to have ECGs and/or Exercise ECGs when they are clinically asymptomatic? If the younger persons have cardiovascular problems, these should have been discovered at the clinical examinations, unless the medical practitioners cannot detect congenital heart diseases, rheumatic valvular diseases and so on.

From this present study, it would seem that it is not cost-effective to request asymptomatic persons younger than 40 years old to have ECGs, and even less productive to subject them to Exercise ECGs.

TABLE 5

ECGs & EXERCISE ECGs — MEDICALLY INDICATED
Usefulness — % Yield

MEDICAL INDICATIONS	ECGs			EXERCISE ECGs		
	Number	Useful	%	Number	Useful	%
1 Hypertension	13	6	46.2	10	3	30.0
with enlarged heart	1	1	100.0	1	—	—
with angina	1	1	100.0	1	1	100.0
with stroke	1	—	—	1	—	—
2 Enlarged Heart	1	1	100.0	2	—	—
3 Heart Murmurs	8	1	12.5	8	—	—
with High Blood Pressure	1	1	100.0	1	—	—
4 Septal Defects	8	2	25.0	9	1	11.1
5 Valvular Diseases	2	—	—	3	2	66.7
6 Chest Pain	1	—	—	5	2	40.0
with Thyrotoxicosis	1	—	—	—	—	—
7 Coronary Insufficiency	3	—	—	4	1	25.0
8 Myocardial Infarction	—	—	—	3	2	66.7
9 Arrhythmias	2	—	—	10	—	—
10 Tachycardia	2	1	50.0	2	1	50.0
11 Bradycardia	—	—	—	1	—	—
12 Hypotension	—	—	—	1	—	—
13 Diabetes Mellitus	2	—	—	1	1	100.0
with High Blood Pressure	1	1	100.0	2	1	50.0
with High Blood Pressure & T.I.A.	—	—	—	1	—	—
with Cerebral Ischaemia	—	—	—	1	1	100.0
14 Hyper-Lipoproteinaemia	—	—	—	1	—	—
15 Cardiac Surgery	1	—	—	2	—	—
extra-cardiac	1	—	—	2	—	—
16 Complete RBBB	—	—	—	2	—	—
with S-T changes	—	—	—	1	—	—
17 S-T and T-wave changes	—	—	—	2	—	—
18 T-wave Inversions	—	—	—	8	—	—
19 W-P-W Syndrome	—	—	—	1	—	—
20 ECG variants	—	—	—	2	—	—
21 History of Abnormal ECG	—	—	—	1	—	—
22 Cerebral Ischaemia	—	—	—	1	—	—
23 Gross Overweight	—	—	—	2	—	—
24 All Impairments	50	15	30.0	92	16	17.4

**USEFULNESS indicates discovery of extra pathology, or confirmation of absence of any pathological complication.*

It would seem worthwhile to subject persons with severe hypertension, if not moderate hypertension, and especially those with complications, to have ECGs and Exercise ECGs.

Severe diabetics with or without complications should be required to have ECGs and Exercise ECGs.

Persons with congenital heart diseases and acquired valvular diseases should also have ECGs and Exercise ECGs.

Chest pains with history akin to angina pectoris must be investigated. Exercise ECGs have to be done. A high yield is expected.

Should persons who have suffered from myocardial infarction be subjected to Exercise ECGs? Is it not dangerous?

In the past, it would have been taboo! Until recently, exercise testing is limited to establish a diagnosis for latent or overt heart diseases. Currently, in well equipped medical centres, exercise testing is carried out to evaluate the safety and the capacity of the patient with myocardial infarction to return to work and to carry out various physical activities.

TABLE 6

ECGs & EXERCISE ECGs
Medical Indications — Special Groups
Usefulness — % Yield

MEDICAL INDICATIONS	ECGs			EXERCISE ECGs		
	Number	Useful	%	Number	Useful	%
Hypertension	13	6		10	3	
with enlarged heart	1	1	50	1	—	31
with angina	1	1		1	1	
with stroke	1	—		1	—	
Septal Defects	8	2	20	9	1	25
Valvular Diseases	2	—		3	2	
Diabetes Mellitus	2	—		1	1	
with H.B.P.	1	1	33	2	1	60
with H.B.P. & T.I.A.	—	—		1	—	
with Cerebral Ischaemia	—	—		1	1	

**USEFULNES indicates discovery of extra pathology, or of absence of any pathological complication.*

Obviously, pathological ST-T wave changes appearing in the Exercise ECG of a person who had myocardial infarction is of much greater significance than another whose current Exercise ECG is normal or with only pathological Q-waves.

Exercise Stress Tests

Exercise stress testing is not without risk, especially in persons with history of previous myocardial infarction. Rochmis and Blackburn surveyed 170,000 tests and found the risk of mortality to be 1 in 10,000 tests (0.01%). However, with proper safety precautions, risk can be minimised.

Safety precautions to be taken include the following:

(1) An informed written consent must be obtained.

(2) An emergency cart with standard component of emergency equipment must be available — defibrillator, air-viva and medications.

(3) Staff must be trained in exercise testing and able to recognise abnormal responses and the indications for terminating a test.

(4) A 12 lead ECG before exercise is mandatory.

(5) Continuous clinical and ECG monitoring is required.

TABLE 7

MEDICALLY INDICATED ECGs
Detected Impairments

CLINICAL INDICATIONS	ECGs	IMPAIRMENTS
Hypertension	13	3 — Left Ventricular hypertrophy 3 — Ischaemic patterns
HBP with enlarged heart	1	1 — L.V.H with ST-T changes
HBP with angina	1	1 — Ischaemia
Enlarged Heart	1	1 — Left Ventricular hypertrophy
Heart Murmurs	8	1 — Left atrial hypertrophy & LVH ? Mitral valvular disease
Heart Murmur with HBP	1	1 — Left ventricular hypertrophy
Septal Defects	8	1 — Complete RBBB 1 — WPW with RBBB
Tachycardia	2	1 — WPW with paroxysmal tachycardia
Diabetes with HBP	1	1 — Ischaemia

TABLE 8

MEDICALLY INDICATED EXERCISE ECGs
Detected Impairments

CLINICAL INDICATIONS	EX ECGs	IMPAIRMENTS
Hypertension	10	1 — Ischaemia 1 — Left atrial hypertrophy with L-V overload 1 — T-wave changes
HBP with angina	1	1 — coronary ischaemic disease
Septal Defects	9	1 - Left ventricular overload
Valvular Disease	3	1 — Left atrial hypertrophy ? MS. MI 1 — Mitral prolapsing valve (correlating clinical findings)
Chest Pain	5	1 — Angina developed at Ex Test 1 — Ischaemic pattern
Coronary Insufficiency	4	1 — Old Infarct with severe ischaemia
Myocardial Infarction	3	2 — Infarcts with coronary ischaemia — positive tetsts
Tachycardia	2	1 — Treadmill with single V5 lead negative * Double Master's Test positive
Diabetes Mellitus	1	1 — Ischaemic patterns
DM with HBP	2	1 — Ischaemic heart disease
DM with cerebral Ischaemia	1	1 — Ischaemic heart disease

Factors in Effectiveness of Exercise Tests

The 3 common devices available for exercise testing are the Master Two-Step Test, the Bicycle Ergometer, and the Treadmill Test; each having its advantages and disadvantages.

Different physicians prefer different devices. Their choices being influenced by economics, and their experiences and usage.

Whatever the device is used, it is important to pay attention to certain factors that will determine the effectiveness of the test.

(1) ECG electrodes must be multiple and con currently recording various different leads, otherwise false negatives may result.

(2) ECG electrodes must be properly placed and fixed in their respective positions. This is to avoid displacement of electrodes during the process of exercise, giving rise to ECG artefacts.

(3) Attained Maximal Heart Rates should reach at least 85% of the predicted maximum.

(4) In Double Master's Test, the increase in exercise heart rate over resting hear rate should be over 60/min, and the minimum attained maximal heart rate during exercise should be well over 120/min. It is the author's experience, that quite often persons undergoing Double Master's Test are not sufficiently stressed by the method.

It is vitally important to ensure the exercise tests stress the persons sufficiently. Negative tests at low heart rates can be dangerous in terms of interpretation. Such tests are no more valuable than the resting ECGs.

CONCLUSION

From this study and with the ever increasing high cost of ECGs, especially Exercise ECGs it would seem that only few asymptomatic persons should be required to have ECGs or Exercise ECGs in General Health Screening. Perhaps these tests should be dispensed with in persons less than 40 years old, as the percentage yield of discovering pathology is very small.

TABLE 9

EXERCISE ECGs
Increase in Heart Rate over Resting Rate

Heart Rate Increase	Total Number	Number Pathological	% Yield
<20/min	—	—	—
20-40/min	—	—	—
40-60/min	4	2	50.0
>60/min	136	14	10.3

TABLE 10

EXERCISE ECGs
Maximal Heart Rate During Exercise

Heart Rate/ Min	Total Number	Pathological	% Yield
101 – 110	*1	1	100 0
111 – 120	*1	—	—
121 – 130	3	1	33 3
131 – 140	7	2	28 5
141 – 150	23	3	13 0
151 – 160	33	5	15 2
161 – 170	38	2	5 3
171 – 180	16	1	6 3
> 180	18	1	5 6

* *On Beta-blockers*

Cases with medical histories and clinical findings should be reviewed by the medical practitioners themselves before requests for the ECGs and Exercise ECGs are made. This is to minimise unnecessary tests and wastage.

The results of tests should be reviewed by the medical practitioners co-relating medical histories and clinical findings, to prevent over or under interpreting of any pathology. False positives create cardiac neurosis, while false negatives give a false sense of good health, resulting in omission of necessary medical attention and treatment.

ECGs and exercise ECGs are valuable in cardiovascular screening. Used discriminately and only on clear indications, ECGs and Exercise ECGs will be cost-effective to the examinees and patients. ■

FOOD FOR THOUGHT

"It is the thoughtful doctor by whom the patient will ultimately be best served. He may or may not display his feelings or brandish his compassion; his manner may be correct rather than cordial, showing respect rather than warmth. But these are matters of style, not of substance or of standards. Only let him, or her, be thoughtful; let him think; reflect, ponder; and there is hope for the patient.

This, it seems to me, is what education should try to achieve. Not telling one another what to do, or what to think. Nor even, as is how fashionable, how to think. But encouraging us all to think. The thinking has to be translated into practice. It must also be communicated so that everyone has an opportunity to compare, to weigh up, and to decide about such matters as quality in general practice."

Dr. J.S. Norell
William Pickles Lecture 1984

ORIGINAL PAPER

HEPATITIS B IMMUNE STATUS OF PREGNANT WOMEN

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INTRODUCTION

The peri-natal transmission of hepatitis B virus (HBV) from asymptomatic hepatitis B surface antigen (HBsAg) carrier mothers to their infants is now recognised as an important cause of hepatitis B infection in infancy (1,2). The range of disease found in infants of HBsAg -positive mothers includes not only transient mild acute hepatitis B, chronic hepatitis B with or without cirrhosis, chronic persistent hepatitis and chronic asymptomatic HBsAg carriage but also, fortunately rarely, fatal fulminant hepatitis (3-6).

A number of studies (7,8) have examined the association of maternal HBV serologic markers with risk of transmission of HBV to the baby. The presence of HBeAg, the presence and titre of HBsAg and the level of DNA polymerase activity in maternal sera have been found to correlate positively with the risk of transmission (9-12) with the highest risk in those positive for both HBsAg and HBeAg (9,13).

Hepatitis B is endemic in Singapore with a HBsAg carrier rate in the adult population of about 10% (14,15) and in neonates of about 13% (16). Very little is however known of the prevalence of high risk mothers-to-be in the local population.

This paper reports on the experience of a private medical laboratory which performs screening for HBsAg and anti-HBsAg (HBsAb) as part of its routine ante-natal panel, and for those found to be HBsAg-positive, tests for the presence of HBeAg in the maternal serum.

MATERIALS AND METHODS

259 mothers-to-be aged between 20 and 40 years who were referred for antenatal screening during the period 1 June 83 to 31 Dec 83 were tested for HBsAg and HBsAb. Those found positive for HBsAg were further tested for HBeAg.

Hepatitis Bs Ag was assayed using the Serodia-Hbs Method (Fujirebio Inc.), a Reverse Passive Haemagglutination (RPHA) Test for the detection of Hepatitis Bs Antigen.

All positive and weakly positive results from the RPHA test were confirmed using an Enzyme Immunoassay technique (Abbott Auzyme II).

Hepatitis Bs Antibodies were assayed using the Abbott Laboratories AUSAB-RIA Test kit, a Radioimmunoassay technique.

The Abbott HBe-EIA Test, an Enzyme Immunoassay technique, was used to detect the e antigen.

RESULTS

14 (5.4%) of the 259 maternal sera tested were found to to HBsAg-positive; of which 7 (50.0%) were also HBeAg-positive. 69 (28.2%) of the 245 sera which were HBsAg-negative were found to contain HBsAb.

DISCUSSION

The number of live births in Singapore is presently about 40000 per annum. Assuming that the HBsAg carrier rate in women of child-bearing age in Singapore is 5.4% from the above results and a practically 100% peri-natal HBV transmission rate from mothers who are both HBsAg-positive and HBeAg-positive, it can be expected that some 1080 infants per year will be infected with HBV through peri-natal transmission. This is a conservative figure since the population studied comprises of private patients who can be presumed to be of a higher socio-economic class than the general population. While no studies have been carried out to establish whether the HBsAg carrier rate

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varies with socio-economic class, the actual rate of peri-natal HBV transmission can be expected to be higher, if similar studies (17) relating to rubella are any guide. Similarly, if the factor of horizontal transmission (eg. from fathers and siblings) is considered, the rate of peri-natal HBV transmission will even be higher.

These observations emphasize the importance of adequate ante-natal screening for appropriate HBV markers in the determination of strategies for the prevention or modification of HBV infection to infants. ■

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EDITORIAL NOTE:

The results of the above paper is very similar to the findings of Chan SH, Tan KL, Goh KT et al who conducted a two-year study between 1980 and 1982 (1). They found that 4.4% of 2273 predelivery maternal sera collected were HBsAg positive by RIA. Their study also showed that the frequency of total HBV transmission was 48.2% among carrier mothers.

In the above paper by Seet AM, perinatal HBV transmission is estimated to be 2.7% (assuming a carrier rate of 5.4% and an incidence of 50%. However, the HBsAg carrier rate of infants one year or less in a major paediatric ward in Singapore was 8.9%. Chan SH, Tan KL, Goh KT et al concluded that perinatal HBV transmission from carrier mothers contributed only 17% of the total HBsAg carrier state of infants. They felt that the majority of HBV infection in infants is by horizontal transmission, i.e. from siblings and fathers.

Sheila Sherlock advocated that the vaccination of sexual and family contacts of hepatitis B carriers should depend on their infectivity (2).

If the carrier is HBe antigen negative and anti-e positive, vaccination of the contacts is unnecessary.

If the contact is either HBsAg or anti HBs positive, vaccination is also not necessary.

She felt that ideally, all newborn babies of HBsAg mothers should be vaccinated.

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ORIGINAL PAPER

THE DIAGNOSTIC PROCESS IN GENERAL PRACTICE

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INTRODUCTION

Diagnosis in general practice is a very different proposition from diagnosis in hospital practice for several reasons. Firstly, the patients in general practice present with a much wider variety of problems which range from medical to psychological to social. By the time the patient is seen in the hospital, the problem has been more narrowly defined. For example, it is possible to put a diagnostic tag such as acute abdomen, coma for investigation, pyrexia of unknown origin and so forth.

However, in general practice, the patients are seen in an earlier stage of the illness when symptoms are general and signs are minimal or nonexistent. And this is another important difference between diagnosis in general practice and hospital practice.

Finally, most of the illnesses seen in general practice are often"minor"but nonetheless cause much discomfort to the patients. The effective treatment of such conditions requries a very good patient-doctor relationship. Michael Balint drew attention to the fact that by far the most frequently used drug in general practice was the doctor himself — "it was not only the bottle of medicine or the box of medicine that mattered but the way the doctor gave them to his patient and the whole atmosphere in which the drug was given and taken".

In contrast, the patients in hospital are usually more ill and require more definitive medical or surgical therapy. Such patients often regress psychologically and are more compliant and receptive to the advice of the doctors. Under such circumstances, the therapeutic effect of a good patient-doctor relationship is less evident and underestimated by the hospital doctors.

After leaving the hospital for general practice, I found that the traditional hospital approach to diagnosis to be inflexible and inadequate to meet the open-ended problems in general practice. This perception was further reinforced when I took in medical students for their general practice posting. The medical students were so busy thinking of the questions to ask that they missed the story the patient was trying to tell them.

E.J.M. Campbell observed that medical students are taught to take a full history and to do a thorough physical examination. However, they are not taught how to be flexible in their history taking or to be selective in the subroutines of the physical examination. They tend to become prisoners of routine questioning and ritualistic physical examinations. In his view, we are much better at filling the buckets of our students' mind than in training their searchlights.

Campbell postulated that the diagnostic process may be partly logical reasoning, partly an assessment of probabilities and partly pattern recognition. He advocated that medical students be taught the mental habits of "hypotheses generation" rather than information gleaning.

THE HOSPITAL APPROACH TO DIAGNOSIS

In the hospital, the primary objective of the clinical examination is the collection of data and the subsequent analysis of such data through logical thinking so as to formulate a physical diagnosis. This is based on the premise that patients are ill because they are afflicted by

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an external or internal agent. The causative agent, whether it is infective, nutritional, genetic or immunological, causes structural and physiopathological changes which in turn lead to certain clinical features. These clinical manifestations are recognised as a syndrome which is then given a name as a disease. The problem in diagnosis is thus to identify the "disease".

Doctors are programmed to collect answers to systematic questionnaires and often tend to ignore as irrelevant any other information volunteered by the patient. We are indoctrinated to enquire about the chief complaints and then to elicit the chronology of these symptoms followed by the past history, family history and social history. We then proceed to consider a differential diagnoses of a few disorders. These are then confirmed or eliminated by physical and laboratory examinations.

Pitfalls of the Hospital Approach

1. FAILURE TO LISTEN

In his experience, Michael Balint found that if a doctor asks questions in the manner of medical history-taking, he will always get answers but hardly anything more. He was of the opinion that the doctor has to learn to listen if he wants to fully understand and appreciate the significance of the patient's illness. Petersdorf et al, the editors of the 10th edition of Harrison's Principles of Internal Medicine thought that an informative history is more than an orderly listing of symptoms. In their opinion, there is always something to be gained from listening to patients and noting the way in which they talked about their symptoms. Such nonverbal behaviour may in fact provide important clues to the significance that such symptoms have for the patient. It is through listening that the doctor learns about the disease as well as the patient.

A statement in the Future General Practitioner highlighted the danger that "the doctor may insist on focusing on certain aspects of the patient's problem because they are the easiest to handle. He will then refuse to allow the patient to tell him anything else, or refuse to hear".

It was also noted that the diagnosis of a serious, acute illness with interesting features and which responds quickly to treatment provides the doctor with the greatest satisfaction. Such cases testify to the acumen and ability of the doctor.

2. TENDENCY TO SEE PATIENTS AS "CASES" or "DISEASES"

Patients are not simply a constellation of clinical features to be analysed. Petersdorf et al reminded physicians that patients should not be regarded as "cases" or "diseases" but individuals whose problems all too often transcend the complaints which bring them to the doctor.

However, a diagnostic method which is based on questioning is inevitably disease-orientated rather than patient-orientated. P.C. Bugel, drawing from his experience in Holland, found that medical education tends to focus on the somatic aspect of illnesses. Such an emphasis trains doctors to look for organic answers to all the problems presented by the patient which may or may not be somatic in nature. He felt that such "somatic-fixation" results in a management that is paradoxically illness-maintaining.

Doctors are trained to find out what the patient is suffering from rather than to understand why the patient is sick. As a result we tend to see the sickness in the man and not the man who has the sickness.

3. PRECLUDES THE PRACTICE OF HOLISTIC MEDICINE

In their anxiety to determine the cause of the patient's illness, many doctors tend to overlook the distress and suffering of their patients caused by the diagnostic procedures so long as their diagnoses are fairly accurate.

We fail to appreciate the psychological complications of our patients' illnesses. Our preoccupation with physical diagnosis precludes the practice of "whole person medicine".

There is also a lack of recognition of the importance of psychological factors in the pathogenesis of an organic disorder. Meyer Friedman and Ray Rosenman found that practically all their patients with coronary artery disease have a "type A" personality. These individuals are achievement orientated, time dominated and have repressed hostility. A diagnosis of coronary artery disease without exploring the behaviour patterns and emotional makeup of the patient is only half the story.

4. UNSUITABLE FOR MANAGING PSYCHOSOCIAL PROBLEMS

The forte of the traditional diagnostic process is in the diagnosis of organic disorders. When confronted with a patient who is unable to describe an illness which fits the description of a definitive syndrome, many doctors tend to be frustrated and to label the patient as a "poor historian" or a "neurotic". However, the failure to come to a diagnosis may also be due to the fact that the patient is seen at the early stage of the natural history of the disease. It may also be due to a failure of the doctor to recognise the disease or a lack of knowledge of the disease.

Doctors are taught to find a diagnostic label for their patients before instituting any form of treatment. The dictum, "no therapy before diagnosis" may in fact be an obstacle to diagnosis in some cases of neurosis. In such cases, no diagnosis is possible without some therapy. Such symptomatic or placebo treatment helps to establish rapport and win the patient's confidence. It is only in the context of a caring and empathic relationship that the patient will divulge deep-seated emotions to the doctor.

5. PREDISPOSITION TO TUNNEL VISION

Tunnel vision is a trap which many doctors fall into when they try to make a diagnosis by amassing answers to a systematic set of questions. Very often, the patients are bombarded with an avalanche of direct questions such as "Is the pain crushing in nature?", "Does it radiate down the left arm?", "Do you have pain on exertion?" and so on. Such questions indicate that the doctor has already formed a preconceived conclusion and is trying to fit the patient's history into his diagnostic pigeonhole.

There is a danger that we may miss the significance of certain symptoms as in the following case.

Case No 1:

A young woman complained of a throbbing headache every afternoon which was associated with vomiting and a loss of appetite. She woke up every morning with a dizzy feeling. She couldn't do her daily sit-ups as she would experience momentary blackouts. She couldn't bow or run as she felt like falling and lost her sense of balance and orientation. Whenever she closed her eyes she would either fall towards the front or back. As she walked near a drain or fence, she felt like falling towards them. She couldn't step up on a chair to get anything that is stored above her head as she will lose her balance when she stepped down. She couldn't stand seeing crowds as she would experience a blurring of vision and noise aggravated her headache.

After several months of headache and after having seen a few doctors, she was sent for a CAT scan. This revealed an intracranial tumour which proved to be malignant at operation. After surgery, she was given a course of radiotherapy.

Nine months after the operation, she experienced pain in her right thigh. However, no organic lesion could be detected clinically. It took another three months, during which she continued to have severe pain, before a bone scan demonstrated metastases in her right hip.

The above case demonstrates the importance of listening to the patient. Whether the symptoms are of neurotic or organic origin, the suffering is real to the patient. The doctor cannot possibly win the patient's confidence if the latter feels that the doctor thinks that the symptoms are "imaginary".

THE ART OF DIAGNOSIS

Balint observed that hospital medicine has developed a highly efficient and reliable technique for diagnosis. But it requires the doctor to have a well-founded knowledge and to be able to think of all sorts of illnesses. The doctor must also be sufficiently alert and flexible to notice any unusual or unexpected answers to his questions and to change his initial impressions accordingly.

However, Edward de Bono saw logic as a tool that is used to dig holes deeper and bigger in order to "improve" them. However, if the hole is in the wrong place in the first instance, digging the same hole will not make it better. Likewise, if a doctor has preconceived a wrong diagnosis, conducting further investigations along the diagnostic route would be fruitless and futile. The inherent danger of such a technique is that we tend to probe the problem in depth without seeing the problem in breadth. In practice, diagnosis involves more than the logical analysis of signs and symptoms and requires more than the mere possession of medical knowledge.

What is required is a fresh approach, a receptivity to possibilities and an ability to think of new solutions creatively. This frame of mind has been called "lateral thinking" by Edward de Bono. Lateral thinking is the approach of trying to find solutions by digging other holes elsewhere. It is not so much a technique but an attitude of mind and a willingness to jettison old ideas, doctrines and dogmas.

Petersdorf et al described skill in physical diagnosis as a reflection of a way of thinking rather than a way of doing. In their opinion, the detection of clinical signs is not a question of keener eyes and ears or more sensitive fingers but a mind that is alert to find such signs.

They identified three important elements in diagnosis — knowledge, intuition, and judgement. Judgement implies common sense and to quote Balint, "the problem is not a question of how much common sense is required but how better to aim it". The combination of these three factors constitute the art of medicine. Diagnosis is thus an art as well as a science.

THE ELEMENTS OF THE DIAGNOSTIC PROCESS

Good clinical judgement requires three critical ingredients — clinical knowledge, pattern recognition and intuition.

Clinical Knowledge:

Obviously, we need to have a good foundation of clinical knowledge if we are to become good diagnosticians. We need to be aware of the early and unusual presentations of common illnesses. Early diagnosis requires a high index of suspicion for symptoms which may point to an unusual presentation of a common disease.

For example, diseases in the elderly often do not present with the classicial clinical features. Apathetic thyrotoxicosis is an illustration of atypical clinical presentation in the aged. This is a clinical variant of thyrotoxicosis which is particularly common in old age. It is characterised by mental changes of slowness, apathy or depression with severe weight loss and weakness. Atrial fibrillation is often present and may lead to cardiac failure.

Pattern Recognition:

For medical knowledge to be useful, it must be organised into patterns which can be easily recognised. For example, a history of chest pain which is aggravated by exertion and which radiates down the left arm immediately brings to mind the possibility of angina pectoris.

But there is a very important difference between recognising a pattern in the patient's description of his illness and trying to form a recognisable pattern of the illness through direct questions. In the first case, our main concern is to listen perceptively to the patient's history. In the second, we are intent on interrogating the patient so as to get the answers we are looking for. The following two cases demonstrate the importance of pattern recognition in clinical diagnosis.

Case No 2

A seven-year old boy presented with a history of weakness of both legs and a tendency to fall. He was observed to have a gait which appeared to be a little "waddling". The clinical picture evoked the pattern recognition of muscular dystrophy.

The clinical diagnosis of Duchenne psuedohypertrophic muscular dystrophy was confirmed when the boy exhibited Gower's sign when he was asked to get up from the squatting position.

Case No 3

A history of weakness in the legs in a fifty one years old woman rang a different bell. She was observed to be rather tense and apprehensive. Although the thyroid was not markedly enlarged, the clinical pattern of a thyrotoxic myopathy was registered.

On further examination, she could not get up from the squatting position demonstrating weakness of the proximal muscles of the pelvic girdle. She was also found to have a tachycardia of 110/min with hyperreflexia of the ankle jerks. The diagnosis of thyrotoxicosis was confirmed as her serum T4 level was elevated.

Intuition

This is the "sixth sense" of problem solving which involves noncognitive and subconscious processes. Intuition is a phenomenon which cannot be explained by logic and more often than not dismissed as nebulous. Nevertheless, it is a "skill" which is practiced by most general practitioners as well as the experienced clinicians in the hospitals and often attributed to their experience. Many doctors in fact make a

diagnosis intuitively and then go on to find the various signs to confirm their diagnosis. However, the diagnosis is presented as if it has been made from a sequence of logical analysis.

Although experience plays an important role, intuition probably involves other unknown unconscious factors. These include astute powers of observation and a sensitivity to the nonverbal behaviour of the patient. Another important prerequisite is the ability and capacity to listen empathically to the patient.

Case NO 4

A woman, aged thirty seven years, complained of vomiting, a poor appetite and loose stools after meals for the past two to three weeks. She attributed her symptoms to a "flu" which she had at that time. She also complained of difficulty in breathing.

Intuitively, it was sensed that the patient was not a neurotic and the symptoms was reminiscent of another patient who had chronic renal failure. This impression was reinforced when the patient's blood pressure was found to be 210mmHg/115mmHg and she was noted to have an uraemic facies.

On further probing, the patient admitted that she was treated for hypertension in hospital but had defaulted treatment because of side effects. She was then asked if she had been told that she had a kidney problem. The patient then disclosed that the doctor in hospital had in fact told her that she may need dialysis and that she was afraid of the procedure.

When she was advised that she should be readmitted to hospital immediately, the patient confided that she knew she was quite ill.

Generating Hypotheses

A diagnosis is a label for the patient's condition which identifies the aetiological cause and the disease. However, a hypothesis is a supposition made as a basis for "a priori" deduction without any assumption of its truth. It is formulated as the starting point for further investigation.

Douglas A. Rund expounded the view that physicians usually generate hypotheses early in the consultation and then proceed to confirm or reject the hypothesis and to discover unexpected cues leading to alternate or additional hypotheses. Campbell contended that we have made the cultivation of diagnostic ability unnecessarily difficult because our medical education is geared towards teaching what doctors should do rather than what the experienced doctors actually do.

He also emphasised that the generation of hypotheses is not the same as a list of differential diagnoses. Hypotheses may include procedural categories such as "watch and wait", "refer to surgeon", or "do such and such a test".

A MODEL OF THE DIAGNOSTIC PROCESS

The above elements of the diagnostic process can be integrated as shown in figure 1. This is based on the analogy of trying to fit the pieces of a jigsaw puzzle to form a picture. The diagnostic process has been divided into three phases for the purpose of discussion. In practice, the three phases occur concurrently.

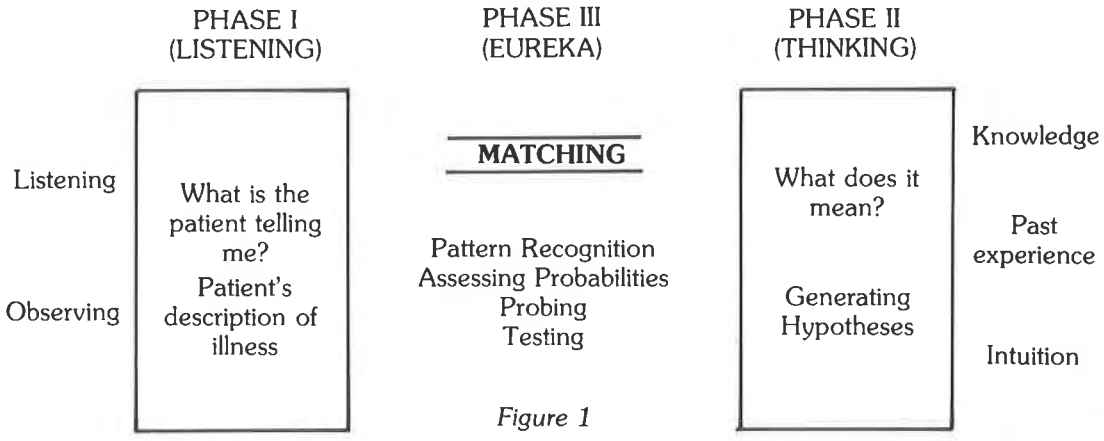

Figure 1

In phase I, the emphasis is on effective communication. During this phase, the doctor tries to identify the various pieces of the jigsaw puzzle from the history of the patient through reflective listening, clarifying, summarising and the physical examination. The primary concern of the doctor is to try and understand what the patient is trying to tell him.

In phase II, the doctor tries to see the picture that will be formed by the various pieces of information which he has elicited. This is the thinking phase during which he draws on his knowledge, experience and intuition to generate hypotheses.

Phase III is what I have called the "eureka" phase as it results in the recognition and definition of the patient's problem. It involves pattern recognition, the assessment of probabilities, probing and testing.

The above diagnostic model allows the doctor to see the patient as a whole instead of seeing only the disease. In this approach listening plays its rightful predominant role. Questions are used only to confirm and test what one has seen and heard rather than to search for clues to fit one's preconceived diagnosis.

By listening to the patient, the process of diagnosis can be therapeutic. This is seen in the following case.

Case No 5

A woman, in her mid-thirties, presented with a sorethroat and cough. Towards the end of the consultation she complained of chest pain. The doctor intuitively and accurately reflected her anxiety with the statement that she appeared to be worried about heart disease.

The patient then broke down and cried and expressed her grief over the sudden death of her father from a heart attack a week earlier. She also felt guilty about having left her father to go to work without first bringing him to see a doctor.

The process of exploring the patient's complaint of chest pain through a listening approach was therefore not only diagnostic but therapeutic as well.

PROBLEM DIFFERENTIATION IN GENERAL PRACTICE

Even before he attempts to make a diagnosis, the general practitioner must first identify the real nature of the problem. Hence, the first stage in the consultation in general practice is to understand why the patient came. For example, a request for a medical check-up may be a subtle overture for reassurance.

Case No 6

A elderly woman came with a request for a check-up and the consultation proceeded as follows:

Doctor: *What's the matter?*
Patient: *Oh nothing. I just thought I would come for a checkup.*
Doctor: *Oh, you are not feeling well.*
Patient: *Well, I have an occasional headache and this pain over the side of my abdomen. It is much better today. But I thought I better have a checkup.*
Doctor: *What do you want me to check?*
Patient: *Well, just a check ... I am travelling by plane to another country in a few days time.*
Doctor: *I see. You are afraid of travelling by plane.*
Patient: *Yes. You see, this is the first time I will be travelling by plane. Can you tell me what it is like?*

McCormick suggested that there should first be a broad categorisation of the reasons for the patient's visit to the doctor before one can define the problem and proceed to diagnosis. The patients seen in a general practitioner's clinic can be divided into four groups:

1. Patients with no problems
2. Patients with organic problems
3. Patients with psychosomatic problems
4. Patients with undifferentiated problems

Patients With No Problem

This group comprises of the patients who come for routine medical checkups, for immunisations, for minor surgery such as toilet and suture and removal of cysts, and for follow up of chronic disorders such as hypertension, diabetes mellitus and thyrotoxicosis. However, the doctor must always be open to the possibility that such encounters provide an opportunity to build a relationship with the patient as well as to learn more about the patient's social and family history.

Patients With Organic Problems

These patients present with obvious organic

symptoms such as fever, anaemia, or bleeding from the gastrointestinal or genito-urinary system. In these cases, the diagnostic approach would be most appropriate. A logical and methodical examination is also useful in determining the aetiological cause and looking for complications.

Patients With Psychosomatic Problems

Such patients may have "problems with living" resulting in depression with somatic manifestations. They may be executives suffering from stress, housewives suffering from the burden of looking after young children and the aged who are lonely and isolated.

Another group of patients are those who are worried about the significances of their symptoms and seek the doctor for reassurance. Such complaints are often generated by misconceived health education campaigns about cancer, heart disease and renal failure.

Finally, some patients assume sick-role behaviour as a way of life. In the initial "unorganised" stage of the illness, the patient "offers" various diagnoses until he or she finds one which is "accepted" by the doctor. There are many patients who have assumed the sick-role of "anaemia", "low blood pressure", "weak heart" and so forth.

McCormick found that in these patients, a mechanistic model of problem definition often leads to symptomatic treatment with psychotherapeutic drugs. The correct approach with such patients is nondirective counselling to help the patient gain awareness of his own problems and find his own solutions.

Patients With Undifferentiated Problems

Patients presenting with common symptoms such as headache, backache, abdominal pain and so forth may be suffering from anxiety and stress or may harbour a serious organic disorder. Such undifferentiated problems tax the clinical acumen and ingenuity of the general practitioner.

Hospital medicine has induced in most doctors a fear of missing an organic disorder in patients who present with vague, illdefined, or common complaints. Hence, most doctors tend to adopt the method of "elimination by physical examination". In a patient who is suffering form neurosis, such an approach only aggravates and confirms the patient in his sick role. Balint cautioned that there is a danger, not only in missing a physical sign, but also in finding one. Doctors have not been trained to look beyond physical causes and often overlook underlying psychological roots which may be the basic cause.

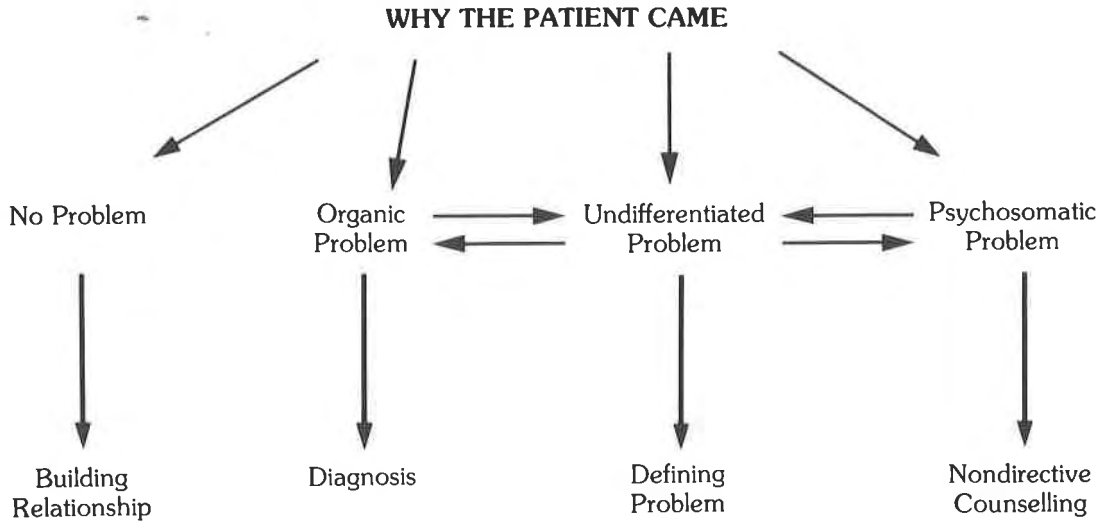

Figure 2

The first step in such cases is therefore to define the problem before any attempt at diagnosis can be made. And listening plays a cardinal role. In this regard, the above model of diagnostic process is a better approach than the traditional hospital method of diagnosis.

The above schematic representation of the problem differentiating process in general practice is essentially descriptive and intended to be a frame of reference to demonstrate the repertoire of consulting behaviour that is required in general practice. In their analysis of 2,500 general practitioners' consultations, Byrne and Long found that most general practitioners adopt rather rigid consulting styles in spite of the wide range of problems presented by their patients.

In Balint's experience, many general practitioners resort to medical history-taking when faced with patients who present problems beyond the field of hospital medicine for want of a better technique even though the results of such a method are not very encouraging.

General practitioners need to develop a diagnostic approach which has flexibility and fluidity so as to be able to cope with the varied problems seen in their practices.

CONCLUSION

Diagnosis in general practice requires more than a systematic way of asking questions and doing a physical examination. It involves more than logical thinking and encompasses intuition, pattern recognition and the generation of hypotheses. Diagnosis is too often regarded as a matter of fixing a label on the patient's condition. In actual fact, it is more akin to the finding and fitting together of pieces of a jigsaw puzzle.

A diagnostic approach based on the analogy of a jigsaw puzzle and which integrates the processes of intuition, pattern recognition and hypotheses generation is discussed.

Finally, in general practice, the problems encountered are often undifferentiated. The question why the patient seeks a consultation must therefore first be answered before any attempt at diagnosis can be made. ■

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ORIGINAL PAPER

THE TRAINING OF CLINIC NURSES – A G.P.'S EXPERIENCE

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INTRODUCTION

In a medical clinic, team-work between the general practitioner and his staff is very important to ensure good patient care. The training of clinic staff is therefore very important.

OBJECTIVE

The aim of any training programme is to produce an ideal clinic nurse cum receptionist who can perform her duties well in a courteous and efficient manner.

SELECTION OF STAFF

There is no doubt that proper selection of staff is the key to success in any staff development and training programme.

The personal qualities we look for in the selection of new staff include the following:

(1) good mannerisms — a clinic nurse must be cheerful, pleasant and helpful with a keen interest in dealing with all kinds of people.
(2) a minimum educational level of Secondary 3 or 4.
(3) a command of languages, including dialects.
(4) a sense of responsibility and commitment to work. This is important as clinic staff deals with medicines, some of which are controlled under government regulations.
(5) a willingness to learn further skills in their work, besides assisting the doctor in doing medical or surgical procedures in his clinic.

THE TRAINING PROGRAMME

The training programme for new staff is divided into two stages. The first stage lasts three months and is designed to coincide with the duration of the usual probationary period before new staff are confirmed in their service.

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During this time, insight is gained into the qualities, work attitudes and suitability of the trainee nurse. If at any time, either party is dissatisfied, then the contract can be terminated.

The first stage of training is directed at:

1) inculcation of proper work attitudes and behaviour.
2) public relations.
3) dispensing duties and responsibilities.
4) medical card filing and retrieval.

After completing the above, she would then be ready for the second stage of the training, which covers the following:-

5) nursing procedures eg. first-aid, dressing of wounds, preparation of instruments for stitching, drainage or excision.
6) care of equipment like ECG, audiometers, surgical instruments and microscope.
7) laboratory tests eg. urine pregnancy slide-test, urine dipstick examination, and RPR test.
8) accounts.
9) drug inventory.
10) health education of patients.

This second stage of the training will take 9 months, and like the first stage training, will take place in the clinic during working hours. The doctor and the senior staff will be involved in both stages of the above training.

On completion of the above two stages of training, the new staff is now considered to be fully trained for her work as a clinic nurse.

CAREER STRUCTURE

It is also important to have a career structure for clinic staff. We find the following system quite useful (Figure 1).

The salary scale for each job designation has been kept wide in order to attract better applicants. With a promotion system and higher wages, the clinic staff has a sense of security and are motivated to better themselves.

FIGURE 1

Job designation	Salary Scale	Years in Service
Trainee nurse	$201 to $299	3 months probation
Junior nurse	300 to 399	further 9 months
Trained nurse	400 to 599	next 2 years
Senior nurse	600 to 799	minimum 3 yrs service
Supervisor	800 and +	Minimum 5 years service

COMMENTS AND OBSERVATIONS

We have found over the years in practice, that the employment of long-serving staff is an asset to the clinic. Their familiarity with clinic operating methods and the good nurse-patient relationship built up over the years are definitely helpful in running an efficient practice in a pleasant and professional manner. There are important aspects which we would like to elaborate.

1. Proper Work Attitudes, Behaviour & Public Relations

To a certain extent, cultivation of good work attitudes, behaviour and public relations could be achieved by proper training of staff. This is best achieved with applicants fresh from school with no previous employment experience. We find them more receptive. The trainee nurse must be made aware of the nature of work in a doctor's clinic. She must be conversant in dealing with the sick, the disabled, the poor and the rich patients in the most appropriate manner. This means she must learn the art of communication. In the process of training, we also benefit by learning the finer points in human relations through the creation of an extended family type of relationship with our staff. A good clinic atmosphere encourages greater confidence in patients.

2. Dispensing duties and responsibilities

The training of new staff for dispensing should include the following:

(a) knowledge of medical preparations, eg. tablets, capsules, eye or ear drops, creams and ointments, mixtures and injectables.

(b) basic drug classification and action so that the nurse can inform the patient better when asked a question. For example, what are the uses of antacids, antibiotic, hypnotics etc. If used, are they better taken after meals? Must all the medicines prescribed be completed? A well-trained nurse should know that all antibiotics must be taken as prescribed, whereas other medicines like Panadol and cough syrup should be taken as frequently as indicated by the severity of the fever or cough respectively.

(c) particular attention must be paid to the doctor's prescription and instructions. The nurse must also dispense without mistakes. It is therefore essential that all medicine containers are properly labelled and arranged in an alphabetical order using the most commonly used name for that particular medicine.

(d) re-checking of all prescriptions by the doctor himself or the senior staff. From our experience we find this task very rewarding and simple. By limiting the range of medicines to the minimum, and by standardization of each medicine by colour, shape and size, we can know instantly what medicine it is when it is shown to us by the nurse. For instance the only white elixir we have is panadol syrup 125 mg/5 ml, and the only green syrup we have is promethazine.

(e) We keep stock of potentially dangerous medicines like diabetic pills in our own drawer nearby. When we finishing writing the prescriptions, we hand both the drug and card to the nurse and collect the drug back after it has been dispensed. For narcotic drugs like pethidine we have learned to do away with them as suitable substitutes are available. This obviates the necessity of having to keep a poison drug register and reduces the responsibility of the dispensing staff for such legally dangerous drugs.

3. Inventory Control

This is usually a difficult job for the busy doctor to cope. A simple method is to buy an index exercise book with the pages identified by the alphabet A, B, C ... X, Y, Z. By stringent selection we narrow the range of medicines to a minimum possible. Then by using the most commonly used name for that medicine, say TETRACYLINE, a simple inventory of this medicine is illustrated in the index book as follows:

Date of Purchase	STOCK IN	STOCK OUT	Date med. was removed from store-room	Balance	Signed Person i/c Person i/c
Jan 1, 1984	5.000	1.000	Jan 4, '84	4.000	Nurse Ng
		2.000	Feb 10 '84	2.000	Nurse Goh
		1.000	March 9 '84	1.000	Nurse Ng
March 24, '84	3.000	—	—	4.000	Nurse Goh

This method is easily taught to both senior and trainee staff. They are instructed to check this book every week, and to inform the doctor when that medicine is short. The doctor thus can in his free time check his supply of medicine. If there is an alarming usage is say tetracycline, there are only 2 possible conclusions: either he is over-using it or somebody is pilfering his stock. He can then take the necessary corrective measures. The advent of the computer for inventory control is ideal, and would certainly complement and increase clinic productivity. Until one computerises, the above method may be useful for the time being.

4. Clinic Accounts

This is another area of constant headache for the un-methodical general practitioner, who is never up-to-date what he buys, or how much he is in debt to his suppliers. By implementing a pay-on-delivery system, keeping big purchases to the minimum, we have effectively solved the problem of keeping track of invoices, statements of accounts and receipts.

5. The Nurse as a Laboratory Technician

This is another area of training the junior nurse does in the second stage of her training programme. Basic tests like urine dipstick examinations, urine pregnancy tests, RPR, urine FEME, and blood glucose could after some demonstrations and practice, be competently handled by the nurse, thereby freeing the doctor's time, for clinical work and health education of his patients.

6. The Nurse as the Doctor's Personal Assistant

This is the ultimate achievement for yourself as well as the trainee nurse who makes it to this post, usually after long years of proven competence in her overall work performance. Besides working in a supervisory capacity over the other junior staff, she is often at the doctor's side, helping if there is any language difficulties, doing laboratory tests when ordered, explaining or answering routine questions from patients — eg. can my child have a bath after an injection?, Can I take "Leng-Yang?" and so on. By taking a load off the doctor's burden, the doctor is more relaxed and therefore less abrasive, and more accurate and productive in his clinical work. Such doctor is also more likely to keep up to date with books and journals and also to attend clinical workshops and to do research work.

SUMMARY

This article illustrates some of the ways and means of training clinic nurses. In the final analysis, the end-product of such a training programme depends on the efforts and incentives put in by the doctor concerned. But what is clear is that every member of the clinic staff has a definitive role to play in any doctor's clinic. The challenge is on the doctor to make their job rewarding, interesting and worthy of a life-long career. ■

SEMINAR

REPORT ON SEMINAR ON TEACHING METHODOLOGY

Teaching is as much an art as a science. It is for this reason that the College of General Practitioners, Singapore enlisted the help of 4 lecturers from the Institute of Education to spend a Sunday afternoon on 15th April 1984 showing College GP teachers the ropes of teaching. They were Mr Ng Kim Beng, Mr Peter Koh, Mr Robert Yeo and Dr Chin Long Fay. The following is a synopsis of the proceedings at the seminar.

LECTURE PRESENTATION

Speaker: Mr Ng Kim Beng

I. The Learner-Teacher Situation

1. PEOPLE ARE DIFFERENT

This truism applies to both the lecturer and the learners. Some of the more important variables are shown in Table 1:

Table 1: Lecturer and Learner Variables

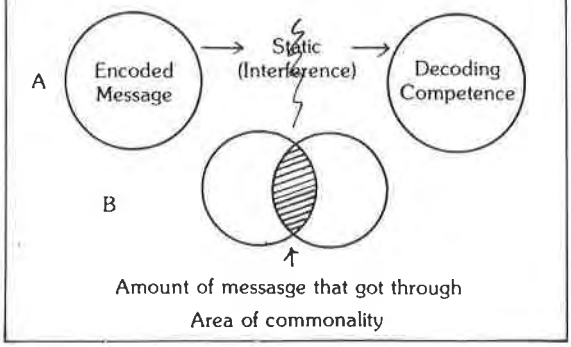
Lecturer variables	Learner variables
• Knowledge and experience	• Knowledge and experience
• Cognitive style	• Readiness
• Teaching style	• Cognitive styles
• Perception	• Learning styles
• Attitude	• Attitude and perception
• Voice	• Motivation
• Presence	• Rate of learning
• Teaching skill	• Attention of span
• Empathy	• Aptitude, intelligence
• Ability to communicate	• Study skills
etc	• Ability to categoriese store and recall information
	etc

Knowledge of the variables operating in a teaching-learning situation enables the teacher to tailor an approach that will be most effective in delivering his message.

2. TEACHING IS COMMUNICATION

Teaching and learning is an interactive process involving both the speaker and the listener. It is a process of communication and is a two way process. It can be depicted graphically as in Figure 1.

FIGURE 1 TEACHING IS COMMUNICATION



3. FACTORS IN COMMUNICATION

Communication depends on more than just the speaker and listener. It may be facilitated or inhibited depending on the following groups of factors:

(a) Speaker or encoder variables
— see Table 1

(b) Listener or decoder variables
— see Table 1

(c) Static:
— noise, temperature, light, seating, proximity or distance between speaker and listener, other distractors.

(d) Structure of message:
— How is it structured, sequenced, organised and framed.

II The Lecture as a Method of Teaching

1. LECTURER DOMINATION

The lecture is a method of communication that is highly oral-aural in nature and more often than not, one-sided, that is, the lecturer dominates and does most of the talking and the learners sit passively and listen.

2. OVERCOMING LIMITATIONS

However, by being aware of the limitations of the lecture method, a lecturer could, within

limits, involve his learners in more than just passive listening. He could, for instance, involve his listeners in a state of alert, mental interactive response by

(a) providing advance cues e.g. an outline of the lecture

(b) summarising the points at appropriate stages of the lecture to assist recall and provide possible linkages with what is to follow.

(c) ask probing questions at strategic points of the lecture and challenge the listeners to think, guess, anticipate or hazard an answer.

Following a lecture is facilitated if the listeners are provided with some idea of the overall structure or the whole or parts at the beginning so that they can follow as the lecture develops. Handouts are useful aids to learning.

3. THE LECTURE VS TUTORIAL

The lecture is suitable for teaching a large group on the topic as a whole. The tutorial is small group teaching aimed as discussing issues. To be useful tutorials must be guided by assignments.

4. IS THE LECTURE DISPENSIBLE?

It is not always possible to do away with with lectures; they are efficient in reaching a large audience. However, the use of lectures must be effective.

5. SKILLS REQUIRED TO LECTURE

The following are basic skills that a lecturer would need:

Explaining	—	giving understanding, using examples to illustrate.
Orientation	—	Opening a lecture, introducing a topic theme.
Closure	—	Summarising themes and linking topics together.
Liveliness	—	Generating interest and enthusiasm; holding the listeners' attention.
Use of Audio-	—	Effective use of blackboard, OHP, slides, visual aids models etc. Attention is facilitated if lecturers make use of as many of the 5 senses of the listeners as possible.

6. ORGANISING CONTENT OF MESSAGE

Proper sequencing of ideas helps memory. Notes too must be properly sequenced if they are to help the reader see the relationship of the various parts of the lecture. Examples of sequencing of lecture notes are given in figure

FIGURE 2 ORGANISING LECTURE NOTES

NOTES SHOWING SEQUENCING:

TOPIC: _____

I _____

1 _____

2 _____

a _____

b _____

II _____

1 _____

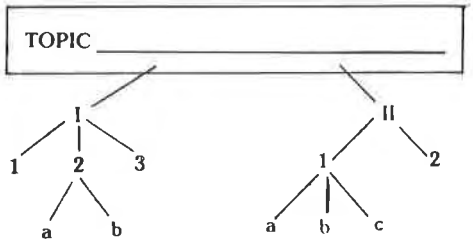
a _____

b _____

c _____

2 _____

NOTES SHOWING CLASSIFICATION LINKS:



In summary, in the presentation of the lecture, the only factor that you have absolute control is the message. Attempts must be made to see how best it can be made to capture the attention of the listener and communicate the intended message.

INSTRUCTIONAL TECHNOLOGY

Speaker: Mr Peter Koh

Instructional technology may be defined as the systematic way of designing, implementing and evaluating the total process of learning and teaching. The goal of instructional technology is to bring about more effective instruction.

1. Terminology

In instructional technology 3 terms are important:

(a) Medium/ media — broadly the means whereby information is carried between a source and a receiver. Film TV, radio, projected visuals are considered as instructional media when they are used to carry messages with an instructional intent.

(b) Format — this is the physical form in which a medium is incorporated and displayed. Slides and transparencies are examples of formats of projected visuals.

(c) Material — an item of a medium format.

2. The "why" of instructional media (and materials)

Instructional media and materials facilitate communication and learning. It makes the teaching-learning process more efficient by

(a) enlarging the range of possible experiences and providing resources for developing the subject area; it tries to bring down the cone of experience from the abstract to iconic.

(b) appealing to the avenues to learning, namely our senses. We learn through our senses. The acquisition power of our various senses are as follows:

* sight 75%
* hearing 13%
* Touch 6%
* Smell 3%
* Taste 3%

SIGHT is the most powerful sense for acquiring information for a normal person. In general, instructional media and materials capitalise on this to improve the learning/teaching process and environment.

(c) helping to interprete abstract ideas.

(d) reducing verbalism

(e) supplementing verbalism

3. Systematic approach to instruction

The potential and advantage of instructional media and materials are useful only if they are made to become an integral part of the instructional system; otherwise they serve no purpose.

All instructional media and materials when used in an instructional (e.g. a lecture) must have been designed, planned, produced or selected and evaluated.

What type of medium/media? When and How is/are they integrated into the instructional system must be planned before the delivery?

4. The 6 stages in instructional preparation

One model of a systematic approach to instructional preparation is the 6 step ASSURE model. See Figure 3.

5. Guidelines for effective Visuals

* Visual images must be large enough for the audience to see easily. Both clarity and brightness of images are involved in legibility.
* Visualised information must be easy to understand and uncluttered.
* The visuals must be created to highlight, reinforce and add to the presenter's commentary.

FIGURE 3 THE ASSURE MODEL IN INSTRUCTIONAL MATERIAL PREPARATION

A	Analyse	—	Analyse learner characteristics: what level of educational objectives to aim for
S	State	—	State objectives to be achieved At the end of the session what do you expect your learners to know
S	Select	—	Select, modify or design material Decide on media — OHP, film etc
U	Utilize	—	Duration of session Learner preparation required Physical preparation required
R	Require	—	Learner response required: exercise, practice, on the job experience
E	Evaluate	—	Evaluate own teaching: Was it effective? Did it meet objectives? What revision is necessary to further improve it?

PROBLEMS & ISSUES IN TEACHING

Speaker: Mr Robert Yeo

1. Teaching is both art and science

Science of teaching

* Being prepared
* Organisation to teach
* Sequencing of material

Art of teaching
* personality
* subjective aspects — charisma

2. The Art of Teaching

Teaching as a art is less easily classifiable. Some of the art aspects are:

* art of how to establish rapport, how to arouse attention and make the audience be responsive
* how to digress and come back to the topic under discussion
* how to depart from plans to adapt to audience response
* how to learn from others

3. Educational Objectives

The order of educational objective must be decided before instructional preparation can take place. See Table 2.

TABLE 2: EDUCATIONAL OBJECTIVES

TYPE OF EDUCATIONAL OBJECTIVE	ORDER
* Memory recall	lower
* Comprehension	middle
* Application	
* Analysis	higher
* Synthesis	
* Evaluation	
— Cognitive	
— Affective	
— Psychomotor	

From S Bloom: A Taxonomy of Educational Objectives

SMALL GROUP TEACHING

Speaker: Dr Chin Long Fay

Small group teaching is becoming an important method of teaching. It is pupil centred. To be effective it must be supported by handouts and activity sheets.

One way of conducting small group teaching is to divide the time into 3 parts:

* — here the objectives of the session is presented as clearly as one possibly can
* Activity in small sub-groups e.g. groups of 5
* Discussion — justify what the participants have done

PLANNED ACTIVITY TEACHING

Speaker: Dr Chin Long Fay

Planned Activity Teaching gives an opportunity for teacher-student, and student-student, and student-class interactions.

It has 3 parts, namely:
* Statement or presentation on the topic
* Participants set to work
* Presentation at plenary session

The role of the tutor is to initiate and summarise main points. He also functions as a resource person and arbitrator.

CONCLUDING REMARKS

The job of the learner is to learn; the job of his teacher is to teach. Yet it has often been said that the learner learnt in spite of his teachers. It is interesting to note that in the primary and secondary education, teachers must be formally trained. Yet, in tertiary education, formal training of the teacher is not a necessary requirement. It was hoped that this seminar will show GP teachers some principles of teaching methodology. It did. On behalf of the GP teachers who were present, may I express our thanks to the 4 lecturers from the Institute of Education, Singapore. ■

GLG

HOME STUDY SECTION

The following two articles have been specially written as part of the Continuing Medical Education programme of the College.

The questions below are prepared to allow readers to assess their knowledge on the problem of abdominal pain in children and the children and the diagnosis and management of the red eye.

We suggest you attempt to answer the questions before reading the articles and revise your answers if you wish after reading. The answers can be found at the foot of this page.

1. In a child with acute appendicitis:
   (a) Most will point to the umbilicus as the site of pain
   (b) Perforation occurring within a few hours is unheared of
   (c) Pain in the right iliac fossa is an early sign
   (d) If the child cries during rectal examination, the diagnosis is confirmed
   (e) leucocytosis is invariable

2. In intussusception
   (a) the incidence is highest when the child is under one
   (b) all cases will reveal vomiting, red currant-jelly stools, abdominal pain and a palpable adominal mass
   (c) the baby may present with vomiting only
   (d) the baby may present with diarrhea only
   (e) the baby may be very quiet with drowsiness or may present with fits.

3. (a) Gastro-enteritis is never common in children unlike in adults
   (b) Hydronephrosis may be a cause of recurrent abdominal pain
   (c) A choledochal cyst may present with only recurrent abdominal pain
   (d) The commonest cause of abdominal pain is worms
   (e) Constipation is a rare cause of recurrent abdominal pain

4. (a) Abdominal pain is the main symptom in abdominal epilepsy
   (b) 90-100% of local children show evidence of low lactase activity in the gut by 4-5 years of age
   (c) Mild immunological bowel disease is a common cause of recurrent abdominal pain
   (d) During episodes of pain due to mild immunological bowel disease, multiple fluid levels may be seen on the erect abdominal X-ray
   (e) Intestinal lymphomas may present as chronic recurrent abdominal pain of increasing severity and frequency

5. (a) In glaucoma, the pupil is always constricted.
   (b) Diamox 500 mg intravenously may safely administered in the acute case of glaucoma
   (c) In nearly 80% of cases of iritis, no cause can be found
   (d) In iritis, the pupil may be normal or irregular
   (e) Systemic causes of iritis include SLE, ankylosing spondylitis and Reiter's syndrome

6. (a) A Stye is an infection of a sebaceous gland of the eyelid
   (b) In conjunctivitis the pupil will be normal sized but the cornea will invariably be hazy
   (c) In herpes zoster, iritis may occur if vesicles appear on the tip of the nose
   (d) The treatment of molluscum contagiosum is by surgical excision
   (e) Blepharitis of the eyelid may be caused by mite infestation

7. (a) Inadequate incision and drainage of a chalazion may result in the development of a granuloma pyogenicum
   (b) Topical steroids is the treatment of choice in corneal abrasions
   (c) Round corneal ulcers tend to be bacterial in origin
   (d) Scleritis is a painless condition seen as a complication of rheumatoid arthritis or collagen disease

Answers to the Self Test 1. a 2. a, c, d, e 3. b, c 4. b, d, e 5. b, c, d, e 6. a, c, d, e 7. a, c

HOME STUDY SECTION

THE CHILD WITH ABDOMINAL PAIN

Professor H B Wong

MBBS, FRCP (Edin), FRACP, FRCP (Glas), DCH (London), PJG, PPA

The main viscus within the abdomen is the alimentary tract and the human being realises this very early in life with his daily eating and elimination. In other words, man is fully conscious of his gut everyday in spite of the gut being controlled by the autonomic nerves rather than the somatic. Because of its daily continuous use, the gut has evolved certain warning systems which alert the owner to incipient or later pathology, and the symptoms of abdominal pain is one of these. Thus, the child very early in life is able to express his abdominal pain when it is present.

PATHOPHYSIOLOGY OF ABDOMINAL PAIN

The sensation of pain in the abdomen can come from both the autonomic and somatic nervous systems, for the latter is involved in referred pain. However, not all parts of the gut have pain-sensitive fibres, e.g. the mucous membrane may be cut without sensation of pain whatever. But, the gut is very sensitive to DISTENSION as a trigger to the pain-sensitive structures. Furthermore, the visceral and somatic peritoneum is sensitive to pain as well as the capsules of the solid abdominal viscera.

However, by far the commonest cause of abdominal pain is distension of the gut. It is so common that the sensation of pain is referred to as abdominal colic. Not only may gut distension occur as a result of obstruction but such distension causing pain can result from an upset of the finely-tuned onward movement of gut contents brought about by onward peristalsis and segmentation contractions of the intestines. Another common cause of abdominal distension is an increase of gut contents either from excessive secretions, faeces, or gas.

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Prepared by request

Pain from abdominal contents other than the gut include all the solid viscera. In the child, the kidneys, bladder, liver, bile ducts are the more common solid viscera which cause abdominal pain. However, referred pain from spinal nerves, the vertebrae, diaphragm, pleura and lung must not be forgotten.

Finally, one must realise that although the mucosa by itself, is not sensitive to pain, yet mucosal lesions can lead to pain via other mechanisms. The pain of peptic ulcer is a case in point. However, intestinal mucosal lesions can affect the movement of the gut mechanically and they can cause partial obstruction, resulting in gut distension and thus pain. One of the commonest causes of recurrent abdominal pain in children is probably mild immunopathology of the gut, causing gut distension and pain. The gut immunopathology is not tantamount to the chronic clinical immunological inflammatory bowel disease, i.e. Crohns Disease or ulcerative colitis but there is an acute, transient ileitis, jejunitis or colitis probably immunological in origin and this sets up gut muscle spasm and hence abdominal pain.

CLINICAL PRESENTATION

A child can present with abdominal pain only at an age when he can talk and convey this feeling of pain, i.e. usually after 2 years. Below 2 years, it will depend on parental observation. There are several types of presentation:-

(A) Acute Abdominal Pain

The child usually has a severe sudden attack of abdominal pain without a previous history of recurrent abdominal pain. It may be serious or may be relatively benign.

The SERIOUS group comprises the acute surgical abdomen such as appendicitis, intussusception, peritonitis, typhoid fever, etc. Pain can arise from solid viscera such as hydronephrosis, pneumonia, pyelonephritis and other lesions. Of these probably appendicitis and intussusception must be especially excluded.

Most children with *appendicitis* will point to the umbilicus as the site of pain and it is useless to wait for the child to say that there is pain in the right iliac fossa (RIF) before diagnosing appendicitis. The natural history of appendicitis in childhood is so rapid that perforation can occur within a few hours of illness. Thus any child with acute abdominal pain and is ill must be suspected of having appendicitis till it has been proved otherwise. The only way to diagnose appendicitis in a child is to get the child's confidence and for him to relax when the doctor palpates the abdomen. It must be "soft" palpation and not deep palpation as for the adult. With practice, minimal guarding in the RIF can be elicited. This is the only reliable sign. All the other so-called 'classical' signs of appendicitis are not so reliable in children, e.g. rectal examination, leucocytosis, limited movement of the right hip, etc. Most children will cry when a rectal examination is done anyway, with or without appendicitis. Even then, one has to think of a high appendix when tenderness and guarding is higher up in the right hypochondrium. If a family doctor is uncertain of the diagnosis he should observe the child hourly throughout the day and if he is unable to do this, the child should be sent to hospital for this hour-to-hour assessment.

"The natural history of appendicitis in childhood is so rapid that perforation can occur within a few hours of illness. Thus any child with acute abdominal pain and is ill must be suspected of having appendicitis."

While appendicitis usually occurs at an age when the child can say he has a tummy-ache, *intussusception*, on the other hand occurs most often at an age when the child cannot communicate verbally, i.e. under the age of one year. Much has been written about the diagnosis of intussusception and the dictum by some surgeons that all cases of intussusception will reveal vomiting, red currant-jelly stools, abdominal pain and a palpable abdominal mass is certainly not true. (1) Intussusception in infants is a serious disease if diagnosis is missed or made late, when strangulation and perforation have occurred. Intussusception, like appendicitis, can only be diagnosed if the doctor thinks of its possibility always. There are several different modes of presentation, many of these not described in books. These include:-

1. The baby with VOMITING only. There is no blood in stools and no crying due to abdominal pain. Thus, intussusception must be considered in every baby who vomits.
2. The baby who CRIES only. This is due to abdominal pain in a baby who was perfectly well before. Again, there may be no vomiting and no blood in stools.
3. The baby with DIARRHOEA only. This has occurred so often in our experience that we suspect intussusception in any baby with diarrhoea especially if there is blood in the stools. The temptation is to consider all these as cases of infective diarrhoea or dysentery. Certainly, the majority will be these, but a small number are due to intussusception. Intussusception under the circumstances is often the "loose" type where symptoms can persist for several days without strangulation.
4. The baby with CNS signs. This type of intussusception is very "malignant" because it is often missed and usually the gut is on its way to gangrene. The baby may be very quiet with vomiting, drowsiness or may present with fits, or totally quiet, almost comatose.

In all these "atypical" types of intussusception, if suspicion is aroused, a rectal examination may bring on red currant-jelly stools; abdominal palpation may reveal the intussucepted mass (most commonly in right hypochondrium); an empty RIF because the cecum is already intussuscepted; and an erect X-ray will show evidence of fluid levels. The most serious type of intussusception is the one with CNS presentation.

The BENIGN group of acute abdominal pain is usually associated with gastro-enteritis or due to some dietary indiscretion, transient constipation, urinary tract infection, pneumonia, etc. Each patient must be assessed on his own merits and no two patients are the same. There are many other causes but no matter what the doctor does the pain is transient and disappears soon after without recurrence in most instances.

"The dictum by some surgeons that all cases of intussusception will reveal vomiting, red currant-jelly stools, abdominal pain and a palpable abdominal mass is certainly not true."

(B) Chronic Recurrent Abdominal Pain

By contrast, chronic recurrent abdominal pain (CRAP) is not heralded by acute critical illness but bothers the child and his parents because of the recurrent episodic nature of the complaint. (2) The symptoms usually start from 3-4 years and reach its peak at about 7-10 years when the incidence gradually falls. Child and parent often have made their usual doctor-hopping rounds hoping for a cure. This is an extremely common complaint all over the world, so much so, that most of the cases have been considered as psychosomatic. It is true that in most instances, the child's health is not affected but this is not invariably so. There are 2 subgroups:-

(a) Pathology can be easily established
(b) Difficulty in uncovering pathology.

This has given rise to the terms organic and functional respectively. In the functional group, over the years, because of difficulty in unmasking the pathological lesion, the cause has been ascribed to psychosomatic problems. There may be some which are so but to ascribe 90% (2) of children with recurrent abdominal pain to psychological causes is probably an overestimate.

Because it is a common problem and a rather annoying one to the child and a very anxious one on the part of the parents, it is worthwhile considering the problem in greater depth.

ORGANIC CAUSES OF CRAP

There are two groups of causes, those originating from outside the gut and those arising from the gut.

(A) Outside Gut

(1) KIDNEYS: This the commonest site of the pain and is due to stretching of the sensitive renal capsule. Any renal lesion can cause pain, especially urinary tract infection and hydronephrosis. Renal pain is seldom correctly referred to the loin by children but again, as always, referred to the mid-abdomen. Urinary tract-infection is easy to detect but hydronephrosis not necessarily so. Hydronephrosis causing CRAP is usually large and intermittent pain occurs because of filling and emptying. Because of this, the lesion may not be felt on palpation as it has emptied at that time. Only when it is full may it reveal itself. A foreknowledge of the possibility of such a lesion helps considerably in waiting for the lesion to fill up when its detection is facilitated.

(2) CHOLEDOCHAL CYST: This is extremely common in girls, and contrary to its usual description of its accompaniment with the triad of abdominal pain, jaundice and an abdominal mass, quite a number of cases present only with recurrent abdominal pain. If a mass is palpable, well and good. But if it is not, a random raised serum alkaline phosphatase seen even in the absence of jaundice, is highly suggestive and an ultrasound scan is the best way to diagnose the lesion. Diagnosis and excision of the cyst is mandatory because with the passage of time, repeated cholangitis leads to biliary cirrhosis and liver failure. Symptomatic choledochal cyst may be seen even as early as the age of infancy when patients may present with the obstructive jaundice syndrome of infancy.

(3) OTHERS: Any other viscus in the abdomen may cause pain such as ovulation, ectopic testes, pancreatitis, cholecystitis, gall stones etc. but these are distinctly rare as causes of CRAP.

(B) Causes from the Gut

In terms of the incidence of gut causes, I have found the following to be relatively **common**:-

(1) LACTOSE INTOLERANCE: As is well known about 90-100% of our children show evidence of low lactase activity in the gut by 4-5 years of age. This is the norm for all mammals, and the high tolerance of milk by Caucasians is an abnormal response brought on by pastoral pursuits for hundreds of years. Thus, it is no coincidence that many Asian children cannot tolerate large amounts of cow milk beyond infancy. Most affected children have been forced to drink large amounts of milk or milk beverages and abdominal pain unaccompanied by diarrhoea is usually seen. Diagnosis is made by a lactose tolerance test and total exclusion of milk and all milk products such as milk beverages, ice cream, cakes made with butter, milk etc. with disappearance of the abdominal pain.

(2) CONSTIPATION: Chronic constipation as

a cause of CRAP is almost as common, and besides the history, large amounts of faecal masses are felt in the left iliac fossa. Abdominal pain disappears with dietary advice, and the establishment of good habits in defecation. In dietary advice, the eating of excessive roughage is not always successful in chronic constipation of the severe type because the addition of more faeces to an already insensitive rectum compounds the problem even further. Increase in carbohydrate with less protein and roughage is more often successful. Recalcitrant cases may need suppositories or/and laxatives or the small operation of anorectal myomectomy.

3) MILD IMMUNOLOGICAL BOWEL DISEASE: For want of a better term, I am convinced that besides the classical cases of chronic severe immunological bowel disease (IBD) such as Crohns Disease and ulcerative colitis, which are rare locally, there are cases of mild IBD brought on by bowel infection such as yersinia, or antigenic stimulation by certain foods in children who are genetically prone to react to these antigens by the production of cell-mediated antibodies resulting in mucosal oedema, narrowing of gut lumen with lymph node enlargement. Episodes of abdominal pain show multiple fluid levels in the erect x-ray and in a few cases subjected to laparotomy segmental ileitis with enlarged nodes have been seen. (4) If the condition is extremely troublesome, a course of prednisolone may alleviate the episodes. However, recurrence is a possibility and final evolution towards classical chronic IBD can occur. A barium study may reveal the segmental narrowing with or without small ulcers.

(4) AEROPHAGY: This has been described by me in children (5) and infants. In children, it occurs in those who have established a tic of swallowing air. Air swallowing in children can be obvious or not so obvious. In those where it is obvious, the child makes swallowing movements even when he is not eating or drinking and examination of the neck will reveal these movements. Sometimes, the child is seen to elevate the chin and extend the neck. This maneuver straightens the oesophagus and tends to hold the superior oesophageal constrictor open so that air is sucked in. Sometimes, this is followed by belching. However, excess air can be swallowed without any exaggerated movements at all but close observation will usually reveal air swallowing. Whatever the cause or mechanism of excess air swallowing, the parent will a history that the abdomen is bloated. It is least in the morning and increases in size during the day where it is at its maximum in the evening. Large amounts of flatus are passed. When the condition is diagnosed, the child can be taught to stop the bad habit and often the condition easily relieved by passing a stomach tube and releasing the spigot off and on to prevent air getting beyond the pyloric sphincter. Aerophagy, of course, disturbs the intestines and causes abdominal pain.

The **less common** gut causes of CRAP are:-

(1) PEPTIC ULCER: This is very much less common in children. In those cases of CRAP when the above commoner causes have been excluded, the children are endoscoped and the discovery of a typical chronic peptic ulcer is distinctly rare. However, occasionally we have seen acute small erosions in the stomach and duodenum. The significance of these small ulcers in the genesis of CRAP is being pursued. If we find them, we give antacids anyway, and in most of these children, the episodes of CRAP get less often.

(2) CHRONIC SURGICAL OBSTRUCTION: These are not common and they comprise recurrent volvulus, recurrent intussusception, malrotation with peritoneal bands, internal herniae, polyps, etc. It is not easy to establish the diagnoses of these conditions for even with barium studies they may be missed.

(3) INTESTINAL LYMPHOMAS: These are mentioned not because they are common but because in the early stages, the patients present typically as a child with CRAP. It is precisely at this stage that one would like to establish the diagnosis because with surgery, chemotherapy and irradiation, the prognosis is not too bad. The patients tend to have more frequent and more severe attacks than the other lesions causing

CRAP, so that one is persuaded to do barium studies earlier than usual. Sometimes, gut masses may be felt which consist of the lesions itself or due to enlarged mesenteric lymph nodes.

" Intestinal worms are seldom the cause abdominal pain and unfortunately it is almost a sort of universal idea among laymen here that the commonest cause of abdominal pain is worms. "

The **least common** causes, if ever they are causes, include the following:-

(1) INTESTINAL WORMS: Intestinal worms are seldom the cause of abdominal pain and unfortunately it is almost a sort of universal idea among laymen here that the commonest cause of abdominal pain is worms, leading to self-medication with anthelminthics, of course, to no avail. Certainly thread worms, whip worms and hookworms do not cause pain, and even the much-abused round worm does not cause abdominal pain unless infestation is heavy so that a bolus of worms causes intestinal obstruction or when the occasional round worm finds its way into the bile duct causing obstructive jaundice. Nowadays, worms are hardly seen in children in Singapore except for thread worms because of the conversion of large parts of Singapore from a soil-based jungle to a concrete jungle inimical to worm propagation. Yet, abdominal pain in children is as common or even more common now than before!

(2) CHRONIC APPENDICITIS: The existence or otherwise of chronic appendicitis has been debated for years. However, one must realise that there are two issues, viz:-

(a) Is there such a condition as chronic appendicitis, or as stated before — "the appendix does not growl but it screams".

(b) If there is such a condition, does it produce CRAP?

Acute appendicitis is a histological diagnosis, and if there is such a condition as chronic appendicitis, the pathologist never or rarely sees it. With regard to the second issue, there have been 2 series (6, 7), where appendicectomy was done in 100 consecutive cases of CRAP, and in 95% of cases, the appendix was normal. If it is abnormal, it is acute appendicitis and, of course, a child with CRAP is not immune from an attack of acute appendicitis. In those few cases with a histological diagnosis of acute appendicitis (7), recurrent abdominal pain continued in spite of removal of the appendix, as with all the other cases without appendicitis that were submitted to an appendicectomy. In conclusion, if ever there is such a thing as chronic appendicitis, it is an extremely rare cause of CRAP.

(3) ABDOMINAL EPILEPSY. This has been made much of previously, viz. that a number of children with CRAP actually are suffering from eilepsy and that the abdominal pain is an aura of the epilepsy or part of the epilepsy itself. However, in those with genuine epilepsy and with complaints of abdominal pain as part and parcel of the epilepsy, it is the epilepsy which predominates and the condition can be easily diagnosed as epilepsy. Thus, the presence of abdominal pain is not the main symptom. Considering epilepsy itself, the presence of abdominal pain as an aura or part of the fit itself is rare.

CONCLUSION

Hence, in a child complaining of abdominal pain, the following diagnostic analysis may be useful:-

1. FIRST, exclude acute abdominal pain due to surgical emergencies, especially acute appendicitis and intussusception, taking into consideration the atypical types of presentation.
2. SECOND, exclude other causes of surgical emergencies in the gut such as volvulus, peritoneal bands, malrotation, herniae, etc.
3. THIRD, exclude causes of abdominal pain outside the gut especially lesions of the kidneys and choledochal cyst.
4. FOURTHLY, lymphomas and other growths in the gut must be excluded.
5. When all the above are excluded, think of:-
   (a) Constipation
   (b) lactose intolerance
   (c) mild immunological bowel disease

(d) aerophagy

In all these, the possibility of secondary psychological overlay perpetuating the CRAP rather than actually causing it should be entertained. The diagnosis can be confirmed by tests in some but the relevant therapeutic trial with relief of CRAP strengthens the diagnosis.

Worms, chronic appendicitis and abdominal epilepsy as causes of CRAP are rare. ■

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RECOMMENDED TREATMENT FOR SYPHILIS, 1984

Reference: Epidemiological News Bulletin 1984 Vol 4, No 7, 40-42

STAGE OF ILLNESS	PENICILLIN	ALLERGIC TO PENICILLIN	
		TETRACYCLINE	ERYTHROMYCIN
Early: Primary and Secondary	I/M Benzathine Penicillin 2.4 mega (1.2 mega in each buttock)	500 mgm 6 hourly, orally for 15 days	500 mgms 6 hourly, oral for 2 weeks
Latent and Late Congenital	I/M Benzathine Penicillin 2.4 mega, once a week for 3 weeks (Children: half dose)	500 mgm 6 hourly, orally for 21 days	500 mgms 6 hourly, oral for 21 days

PITFALLS IN THE DIAGNOSIS AND MANAGEMENT OF THE EYE

Dr C H Low
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INTRODUCTION:

The red eye is a sign common to a host of ophthalmic disorders some of which may be serious if not diagnosed and promptly treated. It is therefore important to recognise these conditions and effect the appropriate treatment. The common and important disorders will be discussed first followed by other conditions of the eyelid, conjuctiva, cornea, sclera and orbit.

GLAUCOMA

This is characterised by a painful red eye with tearing, haziness of the cornea and a dilated pupil. There may be a headache especially over the side of the affected eye. Vision is usually blurred and the observant patient may complain of seeing haloes or coloured lights through the affected eye.

In subacute and chronic glaucoma, the above symptoms may not be obvious. Ophthalmoscopy may reveal optic disc cupping or optic atrophy in late cases.

Glaucoma tends to affect older patients usually in the mid-fifties and above. It is a good idea to check the visual acuity, pupil reaction and optic disc in older patients as a matter of routine examination.

The early detection and treatment of glaucoma can effectively eradicate this condition as one of the major causes of blindness in Singapore.

The investigation of glaucoma consists of tonometry (the measurement of the intraocular pressure), perimetry (the evaluation of the visual fields of both eyes), gonioscopy (microscopic examination of the drainage angle of the eye) and careful ophthalmoscopy of the optic discs.

Treatment of the acute case is aimed at control of intraocular pressure followed by surgery soon after. Diamox 500 mgm intravenously may be safely administered in the acute case with maintenance doses of Tab. Diamox 250 mgm 6 hourly till the pressure is controlled. Pilocarpine (4%) eyedrops every five to fifteen minutes may be required in the severe cases. This may be tailed down to QDS once adequate miosis or pupillary constriction is achieved. These cases are best referred for specialist treatment.

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Prepared by request

IRITIS

Inflammation of the iris may occur secondary to autoimmune disorders, ankylosing spondylitis and rheumatoid arthritis. However, in nearly 80% of cases no cause can be found.

The eye is red with a hazy anterior chamber, and the pupil may be normal or irregular in the chronic case.

It may mimic glaucoma and in fact, it may cause a secondary glaucoma. If in doubt, the eye should be examined under a slit lamp microscope and the diagnosis would be readily apparent.

Delay or neglect of treatment may cause blindness due to severe inflammatory reaction with subsequent occlusion of the pupil.

Investigations may be carried out to exclude systemic pathology but treatment should be instituted quickly.

The pupil should be kept semidilated to prevent iris synechiae or obliteration of the pupil from inflammatory fibrotic adhesions. Steroids administered in the form of eyedrops, subconjunctival injections and systemically are required in severe cases.

Where the cause of the iritis is known eg. ankylosing spondylitis, SLE, Reiter's Syndrome, the specific treatment of the cause should be instituted.

CONJUNCTIVITIS

Conjunctivitis is usually bilateral and the redness is associated with itch and profuse tearing. An acute recent onset as well as a family history of similar attacks make the diagnosis simple.

A normal sized pupil will differentiate it from glaucoma and clarity of the cornea and anterior chamber will differentiate it from severe iritis. The early cases of glaucoma and iritis may be difficult to differentiate without a slit lamp microscope.

The treatment consists of frequent topical antibiotics eg Guttae Neomycin, Chloromycetin, Framycetin.

The severe cases of conjunctivitis and where the cornea shows no dendritic or herpetic ulcers, steroid with antibiotic eyedrops may be used. However frequent monitoring of the cornea is required. If there is deterioration or corneal irregularity or opacification, then steroid eyedrops should be withdrawn and the cornea checked with a microscope for possible dendritic/herpetic ulceration.

CONDITIONS OF THE EYELIDS

1) Allergic Reactions:

eg. Contact dermatitis. angioneurotic edema — Itch is the dominant complaint. There may be a history of contact with an allergen, eg soaps or cosmetics or drugs or shellfish. Topical corticosteroids tds to qds will suffice in simple cases. Severe ones require adrenaline 0.5 ml of 1:1000 dilution, antihistamines and topical/systemic steroids.

2) Stye or Hordeolum:

Infection of the sebaceous glands of the eyelids causes a localised area of redness along the eyelid margin sometimes with surrounding cellulitis. Topical antibiotics suffice in the early cases. Removal of lashes along the affected areas helps in external drainage. If these measures fail, incision and drainage with topical and systemic antibiotics will ensure a cure.

3) Herpes Simplex/Zoster

Herpes simplex lesions along the eyelids may mimic herpes zoster. However these vesicular lesions tend to cluster around the eyelid margins and the mouth. The eyelids may be swollen and inflammed.

Treatment consists of application of antiviral ointment containing IDU, Acyclovir, Trifluorothymidine etc. However once the vesicles appear, antiviral ointments are less effective. Antiseptic/antibiotic ointment may also be applied to prevent secondary infection.

Herpes Zoster lesions tend to be more widespread and severe; the ophthalmic division of the 5th cranial nerve tends to be more frequently involved. This results in involvement of half the forehead and corresponding upper eyelid. There is considerable swelling of the eyelids at a later stage.

Treatment is supportive and antivirals are not helpful. Antibiotic and antiseptic creams may be applied to the lesions. If the lesions are weeping, application of mercurochrome paint will speed up recovery and dry up the vesicles.

Iritis may occur if the vesicles are noted on the tip of the nose. This is because the nasociliary nerve supplies both the nose and the eye. Treatment for iritis as described earlier should then be carried out.

4) Molluscum Contagiosum

This viral infection produces eyelid lesions which present as nodules with umbilicated centres. Discharge of toxic material from these lesions into the eye causes a chronic follicular conjunctivitis which presents as a red eye that is not responsive to topical medication.

Treatment is surgical excision of the lesion with cauterization of the base of the lesion.

5) Blepharitis

Inflammation of the eyelids near the lash bearing area may be caused by Staphylococcal infection, seborrhoea or mite infestation. The first causes an acute blepharitis, the second tends to be chronic and is associated with seborrhoea elsewhere and the third causative factor, the demodex folliculorum mite may be seen under the slit lamp microscope; there is characteristic waxy material at the base of the lashes in demodex infestation.

The treatment consists of removal of the crusts with a cotton tip applicator, tetracycline or sulfonamide ointment in staphylococcal and seborrheic blepharitis and frequent application of ether to kill the mites in the case of demodex infestation.

6) Chalazion

Inflammation of the Meibomian glands i.e. glands on the inner side of the eyelids with the tarsal plate, small lesions may be treated with topical antibiotics but when the glands are greatly swollen, it is best to incise and drain them.

Incision of the Chalazion requires the use of a chalazion clamp and a curette. Inadequate I&D will result in recurrent discharges and development of a granuloma pyogenicum.

DISEASES OF THE CONJUNCTIVA

Allergic Reactions

There are frequent, bilateral and associated with a typical history of use of topical medication or cosmetics.

There is considerable redness of the eyelids although the eye itself is relatively well.

Treatment consists of withdrawal of the offending eye solution, use of topical antihistamines and steroids.

Vernal Conjunctivitis

This is a recurrent form of allergic conjunctivitis caused by atmospheric allergens eg pollen, dust, etc. In the West, it tends to occur in spring and is known as Spring Catarrh. It is associated with hypertrophy of the palpebral conjunctiva with clumps of indurated inflammed papillae.

Severe cases require topical steroids. However, antihistamines will suffice for the usual mild cases. If steroids are used for long periods of time, steroid induced glaucoma may occur. It is therefore important to check the intraocular pressure every two to three weeks.

Phlyctenular Conjunctivitis

Phlyctenular conjunctivitis presents as white-yellowish nodules with surrounding hyperemia near the limbus. It is caused by allergy to staphylococci, pneumococci, tuberculoprotein and the fungus Coccidioides immitis.

Topical antibiotics may be started while conjunctival smears and culture, and other investigations are carried out. Topical steroids may also be started. It should resolve in three to four days with this treatment.

Pterygium

A pterygium is a fleshy red growth of the conjunctiva at the inner or outer angle of the eye. It is caused by excessive exposure to sun, wind and a tropical atmosphere.

Treatment is surgical. Excision should be carried out once the cornea is involved. In long standing neglected cases, the cornea may be badly scarred causing visual impairment or even blindness.

DISEASES OF THE CORNEA

Abrasions and Lacerations

These are common disorders and the history of injury will help clinch the diagnosis. It may be difficult to see the lesion and staining of the cornea with fluorescein may be necessary. The patient is frequently in severe pain with tearing and swelling of the eyelids.

Once the diagnosis is made, topical antibiotic ointment and padding of the eye is required if there is no evidence of perforation of the eyeball. Analgesics and sedation will help to relieve symptoms.

Abrasions heal rapidly within 24 hours but non-penetrating lacerations may take a week to heal.

Topical steroids should never be used when abrasions or lacerations are suspected. Prevention of infection is the key to effective treatment.

Corneal Ulcers

This presents as a localised yellowish or whitish opacity on the cornea in the presence of a red eye. Staining with fluorescein will show staining of the centre of the ulcer.

Round ulcers tend to be bacterial in origin while a dendrite-like pattern is characteristic of herpes simplex infection.

Corneal ulcers of bacterial origin are treated with subconjunctival injections of antibiotics, frequent topical antibiotic eyedrops and ointment, and padding of the eye. Daily monitoring of the ulcer is required to ensure that it is responding to treatment as neglected corneal ulcers may lead to corneal perforation and eventual blindness.

Dendritic ulcers caused by herpes simplex viruses need to be treated with an antiviral eyedrop and ointment eg. IDU, Stoxil, Acyclovir, Herpidu, etc. These drugs are toxic to the cornea when used for more than one to two weeks. Therefore once there is healing of the ulcer these drugs need to be tailed off.

Superficial Punctate Keratitis

Frequently patients complain of eye soreness and irritation for weeks after an initial attack of conjunctivitis. On close examination and with staining of the cornea, you will find tiny white opacities on the surface of the cornea. There are superficial areas of inflammation of the cornea leading to the formation of white tiny opacities that blurr the vision. These may take anything from 6 months to disappear with topical corticosteroids.

Exposure Keratitis

Following facial nerve paralysis or exophthalmos of the eyelids, the closure of the eyelids may be inadequate leading to exposure of the cornea. Ulceration can develop rapidly. Artificial tear drops and bland eye ointments should be applied regularly to lubricate the cornea. In severe cases, an extended wear "bandage" contact lens or even a temporary tarsorrhaphy (stitching of eyelids together) may be necessary to avoid serious corneal ulceration.

Corneal Melting Syndrome

Mooren corneal ulceration and collagen vascular disorders may present with progressive corneal ulceration beginning in the corneal periphery and spreading centrally. There is redness of the eye over the affected area. Topical steroids may be helpful in mild cases while a soft contact bandage lens and various surgical procedures including lamellar keratoplasty may be required in severe cases. Systemic steroids and even immunosuppressive drugs may be required.

DISEASES OF THE SCLERA

Episcleritis

Inflammation of the episcleral tissue causes a painful localised area of redness on the sclera. The rest of the sclera may be normal. This may be associated with autoimmune disorders.

Treatment consists of management of the systemic disorder and topical steroids for the eye. The eye should respond within a couple of weeks.

It may be confused with a pingueculum or early pterygium. The acute history and response to treatment will usually distinguish it from a pingueculum which is usually a smaller asymptomatic lesion, while an early pterygium is not painful and will not disappear with treatment.

Scleritis

This is a painful condition with inflammation of the sclera associated with a strong history of arthritis, rheumatoid disorders or collagen diseases. The inflammation is deeper and there is severe eye pain with redness and tenderness over the affected part of the sclera.

Treatment of the underlying disease and use of systemic and topical steroids may be required.

INFLAMMATION OF THE ORBIT

Orbital Cellulitis

This presents as redness of the eye, eyelids and periorbita. It is usually secondary to infection elsewhere. Occasionally, it may spread backwards intracranially into the cavernous sinus causing thrombosis.

Treatment is urgent and requires vigorous antibiotic therapy and drainage of pus if found pointing on the eyelid. These patients should preferably be admitted for close observation.

Pseudotumour of the orbit

Low grade inflammation of the periorbital tissue and extraocular muscles may lead to the formation of a pseudotumour. The eye may be slightly proptosed with mild redness. Infection or inflammation in the sinuses or elsewhere should be excluded.

Treatment consists of biopsy of the lesion followed by systemic steroid therapy. Localised masses may be excised through an orbitotomy.

CONCLUSION

In summary, the diagnosis of the causative factor for a red eye is frequently simple and straight forward. The common problems include conjunctivitis, corneal foreign bodies, abrasions, styes, etc. Occasionally, it may be due to a serious problem such as glaucoma or iritis, and would require prompt and specific therapy.

Other ocular disorders may produce a red eye that may take a while before the diagnosis is apparent.

However in all cases a careful history, thorough examination and an adequate knowledge of diseases peculiar to this part of the body will enable a correct diagnosis to be made.

The treatment is frequently straightforward once the diagnosis is made. Antibiotic eyedrops, antivirals, and in certain cases, topical steroid eye drops are the mainstay of treatment. Systemic antibiotics and steroids may occasionally be required depending on the nature of the condition. In severe cases subconjunctival injections of antibiotics or steroids may be required. Immediate surgery may be required in certain conditions as in glaucoma, while in other conditions elective surgery may be required later eg. corneal grafting to restore vision in those blinded through corneal opacification. ■

BOOK REVIEWS

GENERAL PRACTITIONER HOSPITALS

Occasional Paper 23
Royal College of General Practitioners

General Practitioner Hospitals in the UK have enjoyed an interesting past; gone through an exciting but at times precarious present and are now poised for the challenges of the future.

Did they come about spontaneously in response to the needs and convenience of patients? I am sure they did and perhaps on a pari passu basis. Hence a few contending claims to have been the first GP Hospital in the UK.

GP Hospitals were probably descended from "the cottage hospital movement" pioneered by Albert Napper in Cranleigh in Surrey in 1858. The success of this movement was that by 1895 there were 294 cottage hospitals in the country.

Cottage hospitals were distinguished from other voluntary hospitals in three respects:-

1. They were open to all GPs.
2. They were located in market-towns and villages and remote from county infirmaries.
3. Patients generally paid a small fee according to their means.

Two important reasons for payment were firstly, a small token fee helped patients to maintain a degree of dignity and secondly, it dispelled the smear of pauperism.

Until the introduction of National Health Service in the UK, cottage hospitals enjoyed an uninterrupted existence. Two reports, the Ministry of Health's Dawson Report of 1920 and the British Medical Association Report of 1938 recognised the need for more beds in GP hospitals. Their main activites were in the areas of surgery and obstetrics.

In 1948 the health authorities under the NHS thought that the closure of some GP hospitals would result in curtailment of economics. However many GP hospitals resisted closure through the concerted action of both the GPs and the communities they served.

The emphasis of the health authorities in the early 60's was the building of large district general hospitals serving populations of about 250,000. Small hospitals such as GP hospitals were considered uneconomical to run.

The unusual circumstances in the Oxford hospital region (rural setting with many small hospitals) made the building of a few large district general hospitals both expensive and difficult. Out of this difficulty the concept of the "community hospital" was born. The concept gained acceptance and endorsement by both the Royal College of General Practitioners and the Royal College of Physicians in a joint report in 1972. The next year the Department of Health & Social Security (DHSS) endorsed the development of "community hospitals" to complement the establishment of district general hospitals. Detailed guidance on the role, function, size, location and activities of community hospitals was spelt out.

Community hospitals were defined by the DHSS as containing 50 to 150 beds. It was thought uneconomical to have hospitals with less than 50 beds and such hospitals would generally be closed. Criticisms were levelled at the closure of these hospitals as well as the proscription of surgery and casualty except of a minor nature and the cessation of obstetric deliveries. The main thrust of the criticism was against a "uniform plan" for all community hospitals without taking into account the special needs and circumstances of the community. In retrospect it was curious that the planners had laid down rules and regulations without adequate knowledge of the amount of general surgery and casualty work taking place in these hospitals. It was not until the report of Cavenagh in 1978 that statistics relating to the work of GP hospitals came to light.

The work of Cavenagh AJM supplemented with additional information from Covell RG, Scottish Home and Health Department and Garvin JS, Northern Ireland Faculty, RCGP, revealed the large amount of work done in GP hospitals in England and Wales. The 350 hospitals contain 3% of total acute hospital beds in NHS. These hospitals involve 4000 GPs (about 16% of all GPs). Morale is generally high in almost all GP hospitals when contrasted with that in district general hospitals.

Casualty work was the most important aspect of GP hospitals. They treat over 2 million casualties annually and in most hospitals they are run on a 24 hour basis. Only 1.4% of all casualties are diverted to district general hospitals. The savings in all respects are obvious.

Inpatient facilities are devoted to acute medical problems, surgery, anaesthesia, chronic problems and terminal care.

Rehabilitative care took the form of occupational therapy, physiotherapy and day-ward facilities.

Other areas covered were radiological diagnosis and outpatient treatment covering well over 1 million attendances annually.

The report concluded that "general practitioner hospitals are providing an enormous amount of medical care both for inpatients and outpatients and they appear to be providing it in an efficient way". The problems relating to this service are in the direction of staffing and remuneration, education, auditing and admitting privileges, resources and the economic strain of long-stay patients. Recommendations are made for the future. I certainly would like to wish them well.

GPs in Singapore as well as health service authorities who are interested in the concept of GP hospitals or community hospitals must find this report both fascinating and beneficial. GPs in the UK have every reason to be proud of GP hospitals which stand as monuments of the best tradition in patient oriented medical care. ■

VC

PRESCRIBING – A SUITABLE CASE FOR TREATMENT

Royal College of General Practitioners, Occasional Paper 24.

How do general practitioners choose the drugs they prescribe? Are the medications prescribed appropriate for each patient? How many different medications are given to the one patient? What is the individual doctor's level of generic prescribing? Is he aware of, and does he take into account, the cost of the prescription to the patient? Answers to these questions on prescribing behaviour surely depend on each doctor's experience and personal preferences.

If these doctors are given analytical information about their prescriptions, would this change, or make them want to change, their prescribing habits? Would having to compare and discuss this with other general practitioners prick their professional consciences more? To search for the answers to these, a study was undertaken by the Department of General Practice at St Mary's Hospital Medical School. The result — the RCGP's Occasional Paper 24.

Dr Conrad Harris and his colleagues, with the help of the DHSS, provided a randomly selected group and a self-selected group of general practitioners over a period of two years with detailed information on the frequency and costs of their prescribing, organised regular discussion/educational meetings among groups of doctors, and then examined the effects on the prescribing patterns of the doctors. The results obtained are certainly very interesting. At the end of the two years, the random group had, compared with a control group, written 5.7% less, and the self-selected group 12.8% less, prescriptions per 1,000 patients than expected, with tremendous savings, of course. Detailed statistical analysis, however, showed that the reduction in the random group was too small to be attributable reliably to the intervention of the study, and might have occurred by chance, but the reduction in costs was most likely to be a real effect of the intervention.

Analysis of the findings also indicated an increased in generic prescribing, a move to cheaper equivalent drugs, and less frequent recourse to new and more expensive equivalent proprietary drugs. The older doctors in the study groups were also found to have a greater reduction in the level and cost of their prescribing than the younger ones, and a greater increase in the level of generic prescribing.

What does all this mean? Are we all over-prescribing? If so, should we not be more careful? Does less prescribing necessarily equal better prescribing? Surely in some circumstances less prescribing can be harmful. If we aim at lowering costs, will the new treatment be as effective as that which it replaces? Is generic prescribing always desirable, and as safe as it sounds? This study vindicates the value of audit of the general practitioner's prescribing habits, and the beneficial effect of comparison with one's colleagues' performance. Even the single doctor who studies his own prescriptions may be unpleasantly surprised by the number of prescriptions given for hypnotics and tranquillisers, and be motivated to prescribe with greater care.

In Singapore, where our patients (or their employers) have to pay for all their prescribed drugs, where almost all general practitioners also dispense medications, and where moves are being made to make our patients more aware of a consultation fee separate from the charge for medications, perhaps we should try not to prescribe a bottle of medication at every consultation, and maybe take a cue from a British Health Education Council poster which reads "Be prepared to leave this surgery empty handed".

I highly recommend this thoroughly thought-provoking Occasional Paper to **every doctor in Singapore.** The plethora of figures and tables, together with the analytical methods used, will be an additional bonus to those partial to statistical study. It is available at the College Library. ■

Moti Vaswani

● ● ●

A DECADE OF RESEARCH IN PRIMARY CARE

Netherlands College of General Practitioners (NHG)
Netherlands Institute of General Practitioners (NHI)

This is a complete survey of all the relevant research in primary health care carried out in the Netherlands between 1972 and 1982. The book is essentially a guide which contains summaries of 452 research projects.

The Netherlands Institute of General practitioners has by now some ten years of experience with research in primary health care in the Netherlands. However, most of the research remains unknown in other countries because of the language barrier.

The book is therefore produced in English as a guide to any doctor who is interested in the research being done in the Netherlands. ■

PK

NEWS FROM THE COUNCIL

1. CONVOCATION AND SREENIVASAN ORATION

The Convocation for successful candidates in Eleventh Diplomate Examination of the College and the Sreenivasan Oration and College Annual Dinner will be held on Sunday, 11 November 1984 at the Meridien Ballroom, Hotel Meridien, Singapore.

The 1984 Sreenivasan Oration will be delivered by Dr Edward J Kowalewski, Professor & Chairman, Department of Family Medicine, University of Maryland, Baltimore, USA.

2. TEACHER-TRAINING FOR CGPS

Dr Edward J Kowalewski will be conducting a one week part-time teaching programme for teachers of General Practice.

3. NEW MEMBERS

The following have been accepted by Council into membership of the College during July/August 1984:

Dr Chia Yuen Tat	Associate Membership
Dr Chin Koy Nam	Associate Membership
Dr Kwan Pak Mun	Associate Membership
Dr Lum Chun Fatt	Associate Membership

We welcome them to the College and hope they will participate fully in all activities of the College. ■

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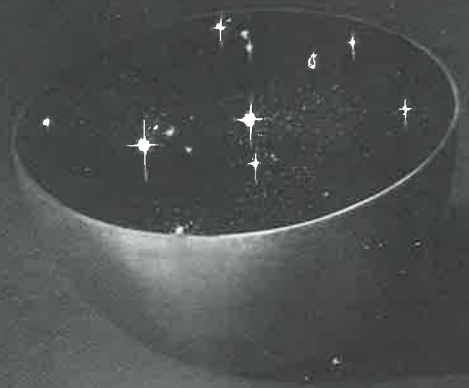

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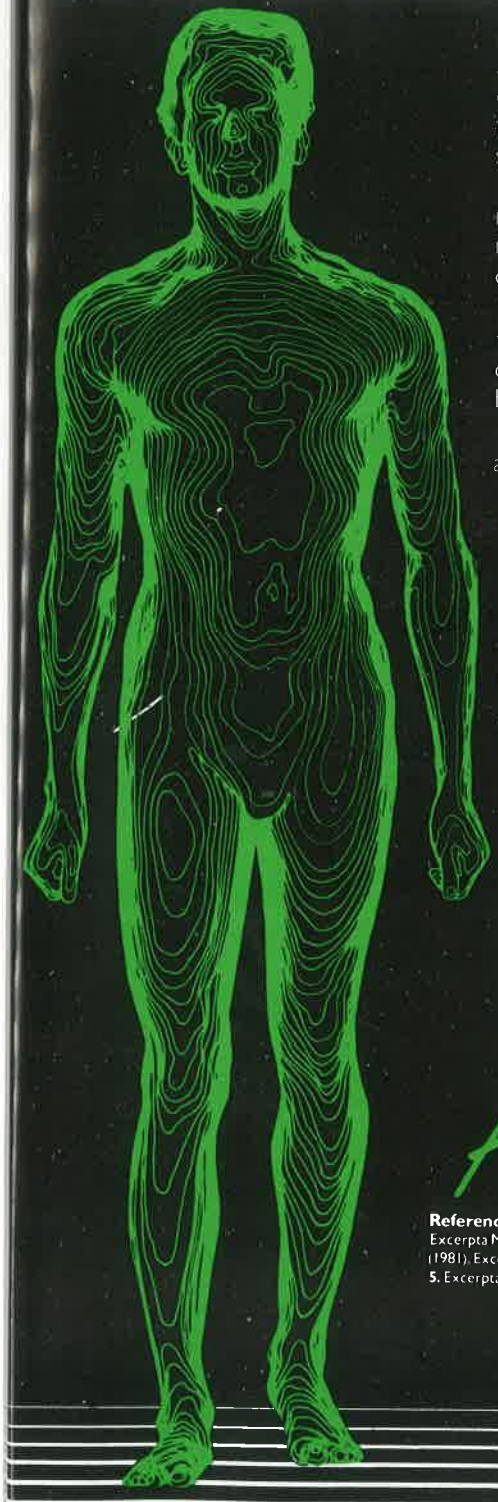

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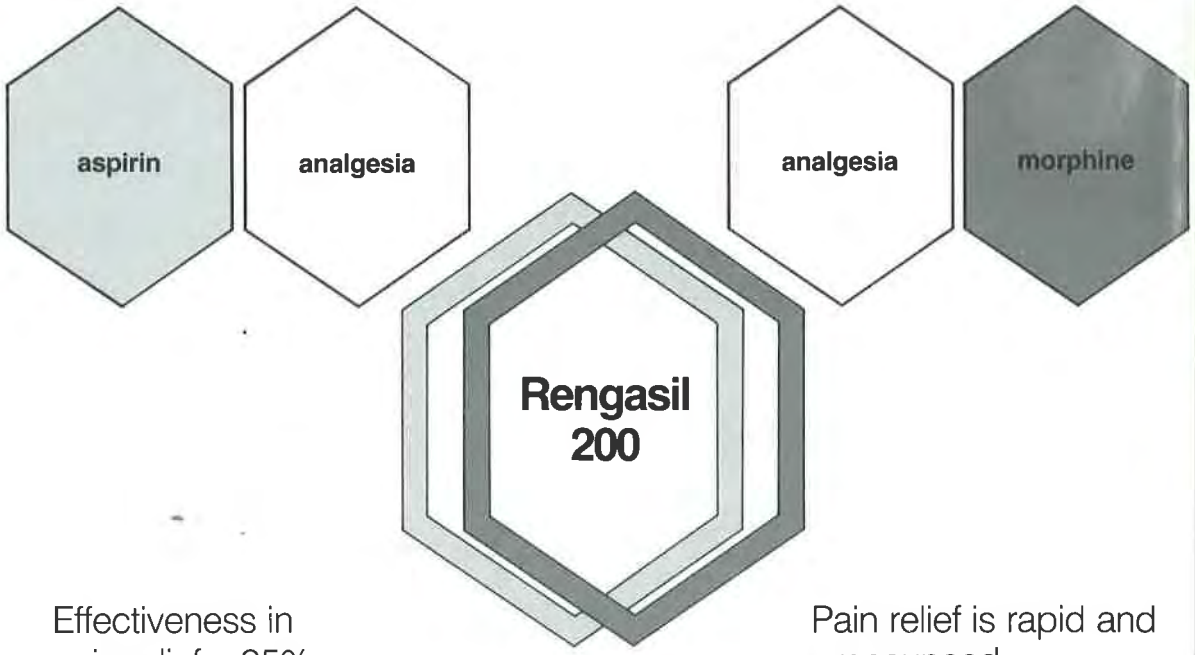
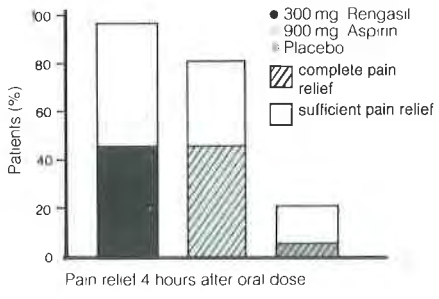
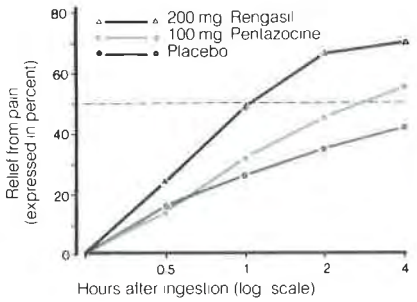


Effectiveness in pain relief –95% (in surgery[1])



Pain relief is rapid and pronounced (in surgery[2])



A sensible balance between aspirin and the narcotics

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* WHO — International Code of Marketing of Breast Milk Substitutes, WHA 34.22, May 1981.

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

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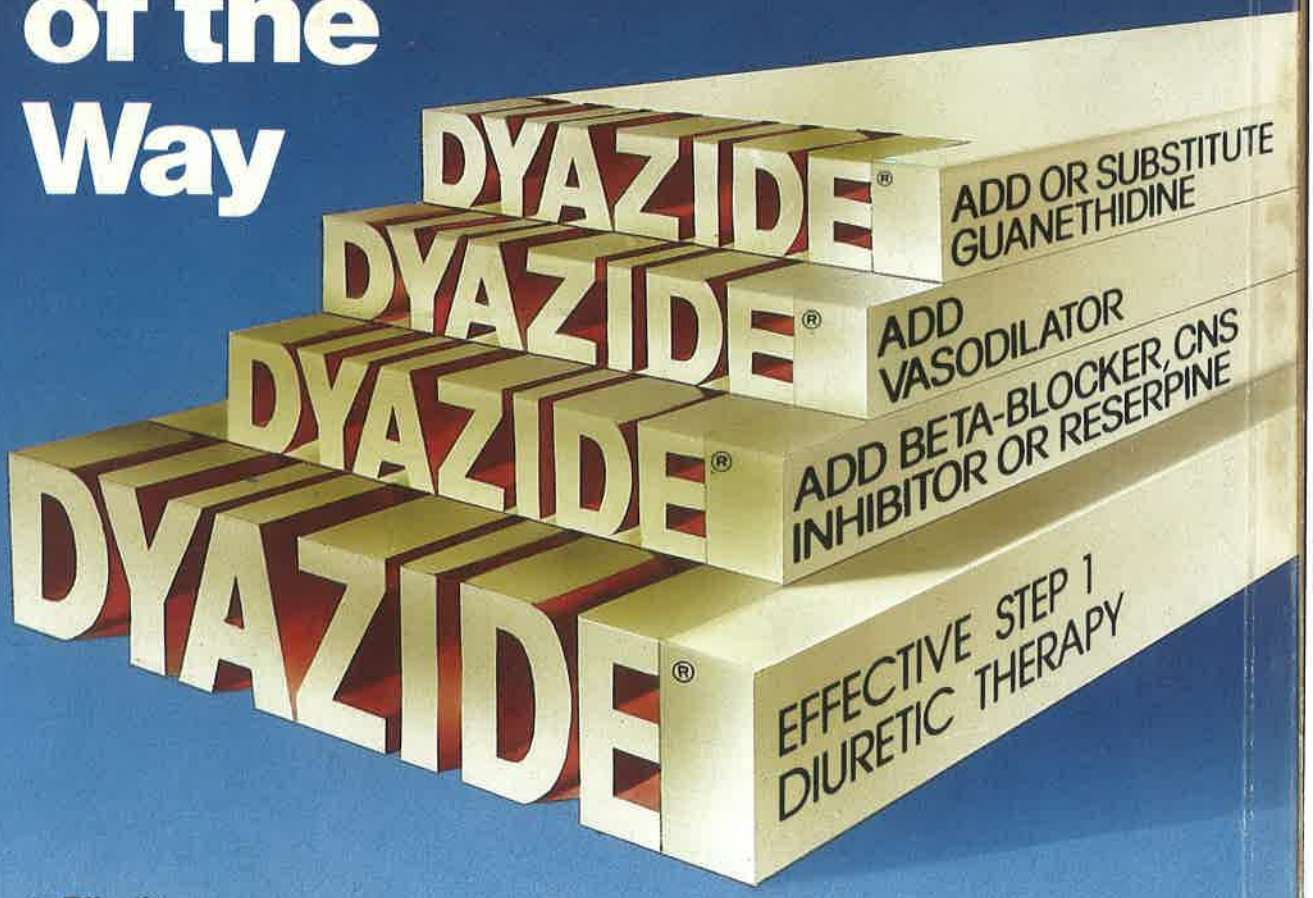

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Further information can be obtained from:
Smith Kline & French Overseas Co., 9th Storey, Inchcape House, 450-452 Alexandra Road, Singapore 0511.

Dyazide (50mg triamterene and 25mg hydrochlorothiazide) is a trademark

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