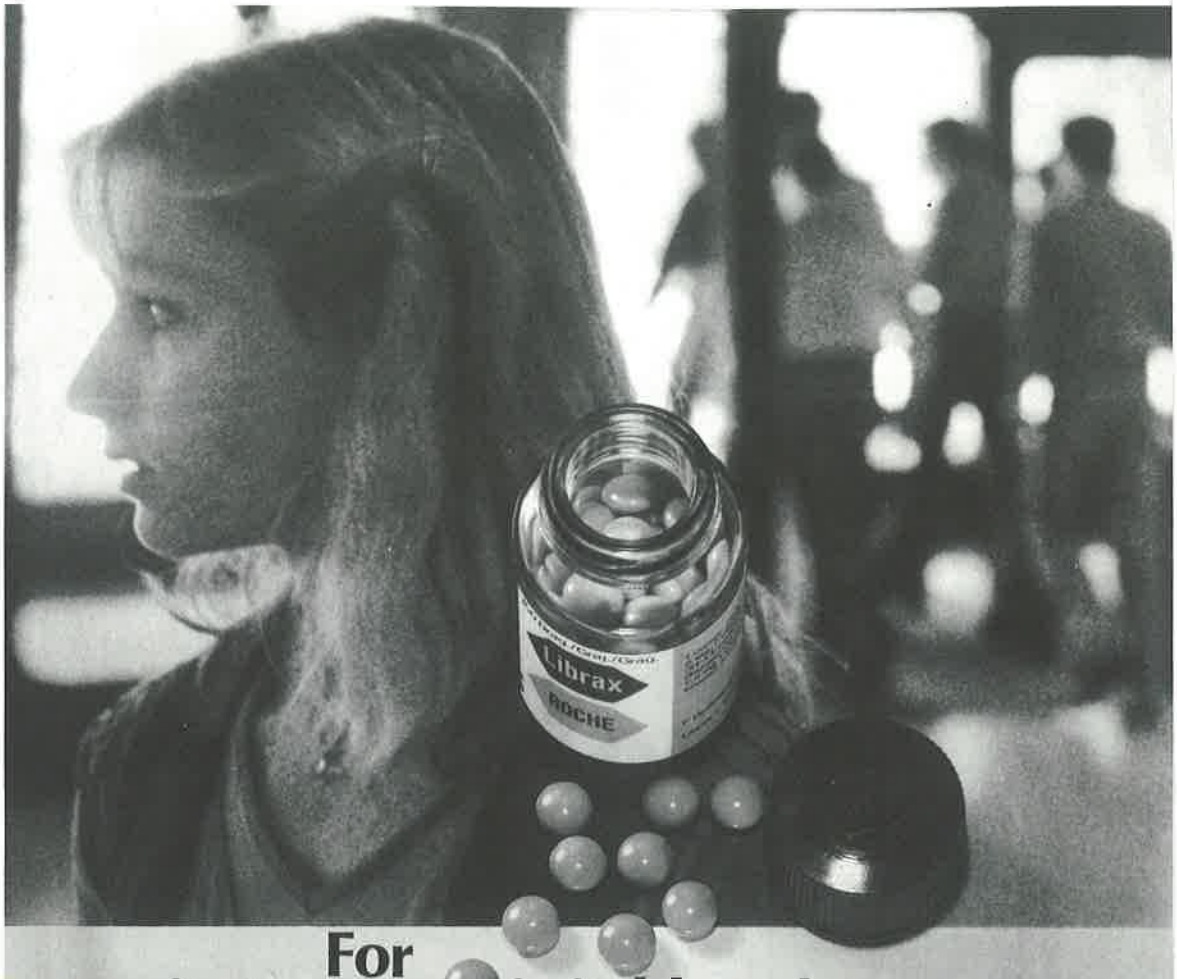
The Singapore Family Physician

The College of General Practitioners Singapore
Vol. X No. 4
Oct/Dec 1984

ISSN 0377-5305



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Vol X, No. 4 October/December 1984 Price to Non Members $5.00 MC(P) 48/3/84

CONTENTS

Page

The Ninth Council 1983/85 125

EDITORIAL –
The Third Party 129

The President's Address at the Tenth College Convocation 131
Dr H S Wong

The Seventh Sreenivasan Oration
The Continuing & Increasing Fundamental Role of the Family Physician in Any Health Care System 133
Prof E J Kowalewski

Family Medicine & Research 137
Prof V Ramalingaswami

Psychiatry in General Practice 141
Prof W F Tsoi & Dr E H Kua

The Total Cholesterol/HDL Cholesterol Index in the Assessment of Hyperlipidemia 145
Drs A M Seet & L C Seet

HOME STUDY SECTION
*Significant Problems in the first 3 months of life 149
Dr K W Tan

*Backache – Its Significance, Causes, Investigations and Management 153
Dr C H Tay

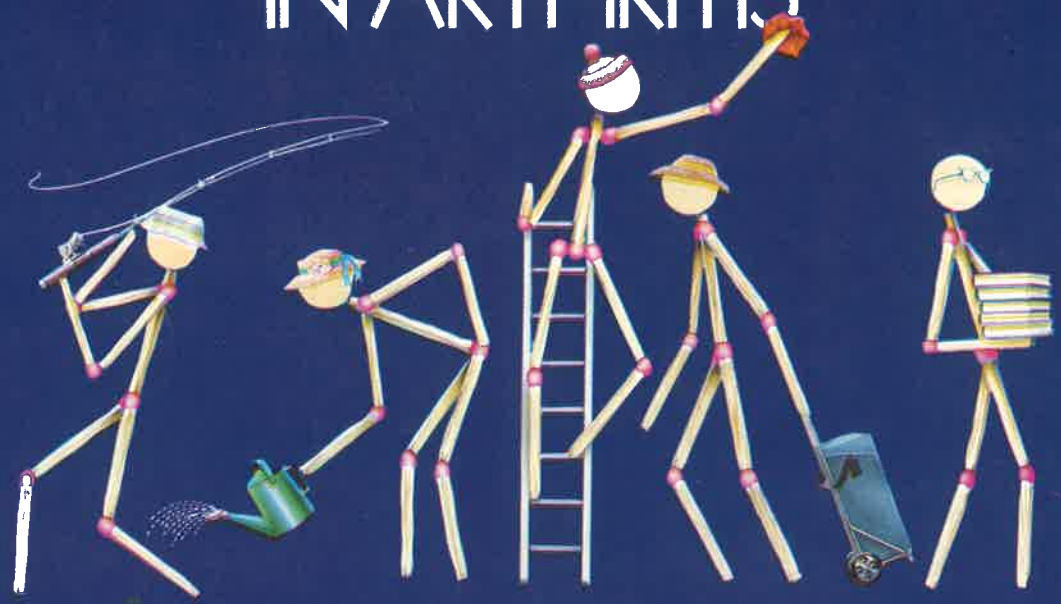
*Treatment of Tuberculosis 160
Dr S K Lee

The Tenth Convocation & Dinner and Seventh Sreenivasan Oration 171
Dr E K Koh

BOOK REVIEWS 172

NEWS FROM THE COUNCIL 174

DELIVERING SUCCESS IN ARTHRITIS



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EDITORIAL

THE THIRD PARTY

There was a time when a medical consultation involved only two people, the patient and his doctor. No one else got into the scene. The teaching of family medicine changed all this. We believe there are more things to consider than merely the health and welfare of the patient alone. How his family reacts to his illness, how much support they give to him in his time of illness and stress are fundamental we believe to his welfare and progress.

Thus more people got into the act, and the consultation between the patient and his physician no longer became a two person affair. The family now formed part of the picture.

This however was not exactly the third party involvement Dr Ed Kowalewski had in mind when he delivered the Sreenivasan oration for this year. The third party that is now becoming more and more involved in the picture is the party who pays the physician's fee, and in some cases rather unfortunately tries to call the tune as well.

Dr Kowalewski in his talk shares with us his experiences of the third party involvement in the United States. Thankfully many of the less desirable attributes of this involvement are not seen here but it is good to be forewarned.

Even now there are many third parties here who pick up the tab in the patient's consultation and management. Of these probably the most frequent are the companies offering medical benefits to their employees. The ruling on the third party relationship here is quite clear. The party who pays the bill does not automatically become privy to the information which transpires between doctor and patient. There are of course the odd employer or two who will lean heavily on the company doctor to divulge medical information to the firm. No such information should ever be given without first obtaining the patient's consent. It does not matter who is footing the bill.

Less clearly marked are the interests of the third party where an insurance firm is involved. Where a patient has agreed to take on a life insurance policy he has first to agree to a complete medical examination and the results of this examination are also made known to the insuring company.

The line becomes blurred when the insurance company demands to know more about the life styles of the patient where the policy covers only personal accidents.

In the United States medical insurance is big business and insurance companies carry considerable clout with the medical profession. An insurance company may thus refuse to pay the fees of a medical practitioner when it feels that unnecessary investigatory or surgical measures have been undertaken. Some insurance firms even have their own accreditation programmes where doctors are vetted and only the acceptable ones are allowed to participate in their insurance schemes.

The third party which gives rise to most concern in the United States is the medical benefits company. These are the credit card companies whose participants "enjoy" medical benefits when they fall ill. Some of these companies purport to be non-profit organisations, but the majority of them are unabashedly profit-oriented. These are the types of commercial organisations that try to call the tune in the medical treatment of their clients. Doctors who trot to their beckoning are rewarded by having more cases sent to them. Those who do not, will no longer enjoy the favours of such patronage.

Like medical insurance, these medical benefit companies do big business and spend much time and money drumming up consumerism in medical health and care. In many parts of Asia following on the example set in the United States, a demand is created for "executive health check-ups" although it is now felt that except for some simple and inexpensive tests, a "full" check-up in most cases is usually unnecessary and may even in certain cases not be without some risks.

As general practitioners we should never allow the practice of medicine to deteriorate into a business venture. We should always be on our guard for practices that can compromise our professional standing. We should firstly and lastly always have the welfare of our patient uppermost in our thoughts and examine very carefully the intrusion of any third party into what has hitherto always been a very private and personal contractual arrangement between a doctor and his patient. **EK**

An update

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Efficacy

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Percentage of patient in V (Voltaren Group) and D (Dipyrone Group)	Before treatment V	Before treatment D	After 30 min. V	After 30 min. D	After 4 hrs. V	After 4 hrs. D
No pain			3	8	46	50
Slight			26	27	37	36
Moderate	17	21	40	38	14	12
Severe	52	48	25	21	2	2
Very Severe	31	31	6	6	1	—

1 Sven O A Lundstam; Lars A Wahlander; Karl-Henrik Leissner; John G Kral: Prostaglandin synthelasc inhibition with diclofenac sodium in treatment of renal colic: comparison with use of a narcotic analgesic: The Lancet, May 15, 1982; 1096-97.

2 A Folha Med. 79 (5) 371-76, Nov. 1979: A comparison of the analgesic activity of diclofenac sodium with that of dipyrone in pain following trauma.

3 Miura, T: Long term tolerability study of diclofenac sodium: J Int Med Res. 3, 145 (1975)

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PRESIDENT'S ADDRESS

TENTH COLLEGE CONVOCATION AND SEVENTH SREENIVASAN ORATION

Dr H S Wong

Fourteen years ago a group of general practitioners met to form an academic society for the upgrading and maintenance of standards in general medical practice and family medicine. The College of General Practitioners Singapore was officially founded on 30 June 1971 and while we had many well wishers, there were not a few who predicted an early death for the College. They doubted that the interest and energy of its members could be sustained, and more importantly whether the College could be viable as an academic body without the necessary infrastructure and financial support.

We had people in our midst who not only volunteered to do the necessary work but they regularly dipped into their pockets to meet the financial shortfalls in the earlier days. Our revenue from membership subscriptions was not even enough to support the Secretariat, let alone meeting other costs. To the credit of the College, donations from members alone to date amounted to more than $153,000 and of this sum the Council members, past and present, gave 66% or 2/3 of the total.

No organisation deserves to fail if their leaders are prepared to support their commitment with their time, their energy and their money.

We are still very much alive today with an increasing membership which now stands at 418. Financially we have accumulated funds to enable us for the first time to invite a distinguished teacher in Family Medicine from the United States of America to deliver this year's Sreenivasan Oration and to conduct a week of teacher-training programme for College members who do part-time teaching. Professor Edward Kowalewski, Chairman of the Department of Family Medicine at the University of Maryland, is one of the leading figures in family medicine, both nationally and internationally. I will leave it to Dr Victor Fernandez, tonight's Public Orator to tell you more about him, but I cannot continue without publicly acknowledging our great appreciation and gratitude to Professor Kowalewski, who so readily responded to our invitation to speak and to help. Few men can match his energy and drive and his dedication to the teaching of family medicine.

Tonight we are using the occasion to highlight our past year's activities. We also use the occasion to remind once again of the need for further training in the field of general practice or family medicine.

There is little doubt that Singapore is striving to keep abreast with the latest developments in medicine, in medical technology and in specialist manpower training.

In terms of secondary and tertiary health care, there is no lack of trying to attain the best that is within our means. But when it comes to primary care, which constitutes by far the majority of cases seeking medical help, the same cannot be said. There is as yet no formal postgraduate training for primary health care for general practitioners.

The main function of our medical school in Singapore is to train doctors to heal the sick. The end-products are expected to be both competent with patients under their care, and sensitive to their needs.

It is often observed that a student entering medical school is a sympathetic person. This empathy for human feeling and suffering becomes less apparent over the years during undergraduate training. Medical education as currently taught is a 5 year academic exercise which aims primarily at the detection, identification and treatment of diseases per se, with little teaching about, or attention given to, patients' behaviour or their feelings.

As long as the doctor remains in hospital practice where the emphasis lies in resolving the physical component of an illness, he can get by. But when the doctor enters the outside world of general practice the scope of practice becomes much wider. No longer can an illness be viewed as a purely pathological disorder but

as the result of a combination of physical, social and psychological factors. How is the present medical gradute to deal with this new situation without having learnt to recognise the feelings and sensitivities of the patients and their resultant behaviour in order to be able to get to the root of all their problems?

The present system whereby any newly registered doctor can enter general practice has obvious deficiencies. The public accepts in good faith a doctor who is permitted to do general practice as one who is professionally competent in this field. This cannot be so, if the only postgraduate training required is the one year of internship covering 3 clinical postings. The graduate is not exposed to many other disciplines which are relevant to the field of general practice and family medicine. Some may argue that these areas have been learnt during the student days, but without the necessary "hands on" experience the learning cannot be consolidated.

There is a feeling, among some medical planners and even general practitioners that the specialist services can cope with whatever cases the general practitioners cannot manage. To validate this claim or otherwise one needs only to look at the doctor-hopping situation. It is thought that doctor-hopping is a phenomenon seen only in general practice. This is not the case as specialist-hopping and sometimes hospital-hopping is also seen. What can all this mean? Simply, the patient may be searching for the medical care that has so far eluded him.

No doubt there are instances when pateints doctor-hop for no good reason, but it could also mean that they have not found the right doctor who is able to satisfy their needs.

A good example as an illustration is the plight of the functionally ill. Specialists are experts when it comes to diseases or to diseased parts of the body. But where no physical pathology exists the specialists are sometimes as helpless as the patients who seek their help. Those that are unwell because of psycho-social factors form a large part of a general practitioner's practice and unless the doctor is equipped by training, either formally or through long years of experience, he is unable to deal with such cases.

It is an ironical situation that a non-medical body, the National Productivity Board has initiated official action to enforce further training of general practitioners before they can take part in industrial and occupational health care. And yet there are other areas, some of greater priority than industrial health, where training is denied, despite repeated requests from the practitioners themselves. Take for example Emergency Medicine. If the general practitioner, as the doctor of first and often nearest contact, is not trained to deal with sudden life and death situations, surely there is a serious omission in his training.

The College has struggled to remedy this continued lack of vocational training of general practitioners and family physicians by organising teaching programmes throughout the year. There is no compulsion to take part, but the large numbers attending would indicate that there is a need for such training.

As if we do not have enough on our hands a new and worrying situation has recently developed which would have greatly affected the activities of the College. We are losing our present premises to make way for urban redevelopment.

It is therefore with great pleasure that I report the timely and welcome offer of a new home for the College by the Ministry of Health. I would like to express my appreciation to the Minister of Health for this help in the planning of a post-graduate medical centre, with the College of General Practitioners and the Academy of Medicine as its nucleus, to be housed in the prestigious old Faculty of Medicine Building. This turn of events constitutes a new milestone in the College development and it offers new and tremendously exciting challenges. Our earnest hope is that our efforts will not be entirely one sided, but will include official participation to help in the attainment of the objectives of the College — namely the institution of formal training and upgrading in family medicine and general practice.

May I conclude by welcoming you all to tonight's Convocation and Oration. You will be able to see some of the fruits of our past year's labour.

The College would like to express its appreciation and thanks to all those who have helped in its progress and especially to you all for making tonight's function a success. You have given us great encouragement and moral support.

THE SEVENTH SREENIVASAN ORATION

THE CONTINUING AND INCREASING FUNDAMENTAL ROLE OF THE FAMILY PHYSICIAN IN ANY HEALTH CARE SYSTEM

Edward J Kowalewski
MD

In the past four decades, many important advances have been made in the areas of medical knowledge, medical technology and in the tools that we, as physicians, have available to us to improve the care of our patients. Improvement in our diagnostic capabilities have occurred in such rapid sequence that even the most informed physician has difficulty sorting out which study is specifically indicated. Diagnostic Imaging is a special case in point. The quantity, quality and specificity of medications at our disposal have been increasing by leaps and bounds. Especially noteworthy is our increased understanding of how and why these medications work. These advances have been so numerous and so specific that it has required individuals to concentrate specifically in one area, resulting in increased sub-specialization beyond what we already believe to be unreasonable and detrimental to patient care. We not only have sub-specialists such as the Emergency Room Physician, but we also now have the "Intensivist," the "Traumatologist," and the "Shock Trauma" specialist.

Many times these promising advances are dramatic, over-publicized and not fully evaluated but are naturally very attractive to our young future physicians. Students are being encouraged by their faculties and medical schools to enter these fields because of benefits to them by increased research grants and the resultant publicity the schools receive from this front page type of exposure.

In the United States we have a perfect example of this. There is a rather well-known medical publication that distributes advance copies of select articles of their next issue to the press, so that every Thursday morning our newspapers have headlines of a new "cure", "miracle medicine" or irradication of a long standing disease. A "cure-a-week" phenomenon that is usually not heard of again after Saturday, and, if the article is read carefully, one finds almost no support for such promised optimism. Where are our guardians of medical literature who are supposed to assure the quality and reliability of the medical printed word? Even as physicians who have been trained to select the worthy from the unworthy printed word, we are having trouble because of the many economic, public relations and political forces that are influencing our medical publications.

While this kind of literature is a serious problem for the medical profession, it has even more serious consequences to the public and especially our patients who get to read the end results of such literature in their popular magazine.

The public is confused and wants to know when these "weekly" cures will benefit them, and, if there are so many cures, why do we still have so many sick and dying people. How many times have patients come to their family physicians seeking the "instant care" that they read about and have to be told about the difference between research studies and what is actually available on the market. Does this create public confidence in the medical profession and where does it place the individual physician who has to interact on a one-to-one basis with his patient?

While the above phenomenon was occurring in the medical profession, patient care was also being influenced by new forces — "social, economical, political and industrial." These forces are becoming increasingly involved in the determination of policies and actual delivery of health care. The popular notion that health care for all was an unqualified right which no one could philosophically oppose, became a very popular political tool. Time, however, demonstrated that those

who pushed this concept had not given much thought to the costs involved, ways to provide all of the services promised, or as to who would assume the final responsibility. In our country, at first it was assumed that government, national and state, would assume the burden which they did for a while. But, soon their two major programs — Medicaid and Medicare — faced serious problems which to this day are still growing, and increasingly more costly and most worrisome to all administrations.

During this time another health care phenomenon was occurring, namely the "third party" payment concept. Guaranteed health care for special groups on a pre-payment, card-carrying basis" became the responsibility of not only our governments, but also by so called "not-for-profit" private, entrepreneur insurance companies. The promise of gain was so great that for the most part what was offered was not always based on sound actuarial data, medical or economic, and certainly not epidemiologic, that could clearly project current and future health care needs. The greatest example of this failure to listen to epidemiological predictions was the failure to prepare for the increasing numbers of the elderly and chronically ill.

Next industry became involved in health care by providing increased health care packages for their employees. It seemed that employers found it more advantageous to provide or increase health care fringe benefits rather than salary increases. But, again, not much attention was given to what was promised and the eventual cost should those covered take full advantage of the opportunity.

What was going on in our general economy while these medical events were happening? There were great changes going on, with some areas of the economy going up and some areas going down and a great fluctuation in employment. However, there was one common demominator "everything cost more". Everyone was paying more for services, goods and our future security. This also occurred with medical costs because generally medical costs are determined by the general economy. The credit card — "plastic money" — became a way of life with all of the added costs that their use entails. Therefore, the direct payment by a patient to his physician for services was "giving way" to the medical plastic card and the "third party payor."

While it can be clearly shown that this practice has increased the overall cost of medical care, it also introduced an even greater problem by placing between the physician and the patient, a "third party" who has become very powerful in determining and negotiating health care policy. Medical care was no longer an understanding between a patient and his physician where the individual patient needs were better addressed. Now, medical care has become a political tool and a big business for "third parties". We have come a long way from the "not-for-profit" philosophy of medical care support to the point where political and private medical business interests determine patient care policy without much if indeed any input from patients or their providers. While all of these changes were taking place, the medical profession was being maneuvered into a position of being blamed for being the major cause of health care costs increases. As individual physicians with control over what we do and order for our patients, we do have a responsibility to do everything possible to control costs. However, there are many aspects of health care costs that are out of direct control of the physician. The development of an unrealistic, unbalanced and expensive payment system for physician services that is focused on procedures is a major factor. At the same time, the system does not adequately support cognitive and preventive services that would not only decrease overall costs, but potentially reduce the incidence of disease and injury.

What is the position of the patient in this scheme? For the most part, they are confused and have a feeling of being "let down." They find themselves "pawns" caught up in the system. While a small percentage of the public gives priority consideration to their health care, most do not consider it until they develop a medical problem. Therefore, the public is increasingly losing the right of "choice" in his own health care decision-making. The patient is looking for someone for advice, consideration of his special needs, and guidance in a system that he does not understand. There is one thing however that the patient does understand, and that is that he is paying more of the total bill in the systems being introduced, and is beginning to object and wants to be heard.

What is happening to the role of the physician in these evolving systems? Well, for some

time our conservative demeanor prevailed because we were all doing reasonably well and we felt that, based on past experiences, somehow things would work themselves out without our being too actively involved. But our attitudes are changing and increasingly we are having serious concerns. We are being confronted by activities that a few years ago were considered highly ethically suspect, such as marketing, advertising, select physician programs, competition, physicians engaged in "for-profit" health care systems, patients' lack of free choice, over-involvement of hospital administration in patient care, etc., etc. We can now see that unless we become actively involved on behalf of our patients, more changes are likely to take place and the patient will be the loser. We are asking ourselves tough questions so that we can become more effectively involved: Questions like are we providing the kinds of comprehensive health care services our patients need and want? Have we, as physicians, been as efficient and available as we should be? Do we always provide our services on a reasonably economic basis? Have we utilized medical services, facilities and consultations appropriately? Are we as dedicated to our time-honored reputation as a discipline of "service?" What actions are necessary to improve our health care system? How have we assisted the public in understanding their health care needs? And, finally, what are we doing to improve the training of our young physicians to meet our patients' health care needs?

I am pleased to note that under the leadership of the College of General Practitioners, the family physicians of Singapore have studied the background of the issues I have just discussed and how they apply to the people of Singapore. They are taking very positive actions that will provide significant assurances to the people of Singapore that their health care needs will be met in a high quality manner and is in step with all the medical advances that are being made. They will do so by making available the best predoctoral — undergraduate medical school and postdoctoral — graduate vocational residency training possible for all those students who choose family/general practice as a career. The reason they have selected this goal is based on the fact that any successful health care system must have a sufficiency of broadly trained, high quality family physicians/general practitioners. Family Physicians who are properly trained and dedicated to provide comprehensive and continuing care. Family Physicians whose special training makes it possible for them to care for more than 90% of their patients' needs, and enables them to properly consult for any needed care beyond their personal capability. It is being demonstrated around the world over and over again that health care systems with a core of very capable family physicians provide an efficient, high quality service at a lower cost, and, most notably, with a greater degree of patient satisfaction. It has been my personal observation in studying health care systems of the world that any system that instituted shortcuts at its inlet by utilizing less than highly trained physicians was not efficient, had higher total costs and uniformly resulted in a very dissatisfied public which lead to an early collapse of the sysem.

There is a sequence of events that must be present in the education of the kind of family physician that the Singapore College has as its goal. The student must first feel that there is a real demonstrated need for family physicians. He or she must be the kind of student who feels very comfortable in being close to people, families and communities. They require an exposure while in medical school to family physician role model teachers, and a high quality, equal Family Medicine curriculum. They should want Family Practice to be recognized in their medical school. They have to have assurance that after medical school they will have available a good residency training program that will prepare them for their life's work, and at the end of this special training, recognition in the form of certification as specialists in Family Medicine. Such special training and subsequent recognition will go far in encouraging medical students to choose a career in Family Practice which, in turn, will assure the people of Singapore the high quality of service that they deserve.

The Singapore College is taking the initiative in the development of teachers and appropriate role models required to provide the type of teaching necessary to produce the physician that Singapore needs. They are setting specific goals, objectives, criteria, guidelines and curricular core content. They are also planning specific evaluation tools on a continuing basis by which they can evaluate their efforts objectively, and assure the quality set forth in their goals and objectives.

Of special importance will be the "core content" or basic subject matter that needs to be

taught not duplicating the traditional important basic medical school curricular content, but emphasizing those aspects that are not traditionally taught like the specifically identified needs of the health care system of Singapore. This means that it is a current curriculum based on today's and tomorrow's projected needs. This also means that this newly trained family physician would not only have to have a strong cognitive knowledge and skill base, but also that he or she would have to have special management skills that will guarantee their patients a totality of health care. In this way the important requirement of "Continuity of Care" will be met in which efficiency, quality and reasonable cost will be deliberately taught as a specific skill. He or she will learn to be their patient's advocate and spokesman. They will learn how to work cooperatively and efficiently with their specialty consultant peers. They must learn to provide continuing, comprehensive care for their patients in their offices, in their patients' homes, in the hospital, and in the extended care facility and nursing home, as indicated. This type of training will encourage them to be more of a "hands-on" doctor who can complete more diagnostic and treatment requirements themselves in their own practice settings. They will be taught to administer their practice in a manner that enhances their patient care efficiency and their availability and, at the same time, offer them a fair income and time for their families.

All of this teaching will be based on the individual patient in the context of his family and community on a close personal basis. Because the family is the most important fundamental health care unit identified today, the family physician must therefore thoroughly understand family dynamics medically, socially and economically, if he is to be effective.

These teaching efforts will produce top level, highly competent physicians that are necessary for a successful health care system. If this system is further supported cooperatively with complementarity by the speciality consultative disciplines working together, then collectively they will provide a very efficient, exemplary and economic total health care system for the people of Singapore for a long time.

I have observed that the College of General Practitioners of Singapore has a sound basic core of volunteers who have the dedication and determination to achieve the goals that have been set forth.

Some in the medical profession take the position that a most discouraging state of crisis exists in medical care. Some members of our profession's recommendations are dangerously close to capitulation, while others recommend measures that are contrary to time-honored and time-proven ethical codes of the physician and the Discipline of Medicine. However, I do not believe that such a pessimistic attitude, or an attitude of "do-with-us-as-you-wish", is indicated. On the contrary — I would like to point out that over the past 50 years, medical care and the medical profession have faced many crises and many threats, and yet the medical profession is still the free and honourable profession it has always been. The medical profession was not destroyed in any of these past crises, as a matter of fact each crisis resulted in a strengthening of the profession. Why? Because, regardless of the nature of the threat, somehow the medical profession got together with the patients and the public they serve and resolved the problem to the benefit of the patient and the public.

While today our circumstance has more "players" — the basic issues are the same, and the outcome will still depend on how strongly the medical profession will fight for the rights of the patient. Because the patient is the public and in the end, the public makes the final decisions. Again, as in the past vital to this whole process will be the family physician, who has always been most effective in advising, counselling and speaking for his patients, his families and his community. By such involvement, he rallies and encourages the public to be heard and to be involved, and to receive the care that they want and require.

After reviewing the career and achievements of the late Dr Baratham Ramaswamy Sreenivasan, for whom this Oration is named, I feel that it is not my words that really honor him, but it is the dedication, determination, and the commitment of the members of the College of General Practitioners of Singapore. They have dedicated their organization to do everything within their capabilities to assure the public of Singapore that they will always have the highest quality of family physician possible to serve them. Is such a goal the most meaningful way possible to honour Sreeni — as he was affectionately known. Dr Sreenivasan who certainly was one of Singapore's outstanding medical pioneers, scholars, academicians, teachers and leaders. He and his loved ones would be most proud of what the College has dedicated itself to — this is truly the real honour that should be recognized and recorded. I am truly honoured to be a part of this dedication.

ADDRESS

FAMILY MEDICINE AND RESEARCH

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FAMILY MEDICINE

I am going to approach this subject with the consideration of: first, what is family medicine, next what is research and then see what role those that practise family medicine could play in the advancement of knowledge through research. To a gathering like this, it is redundant to spend much time in the consideration of what is family medicine. Family medicine is a **scientific activity** within the broad field of medicine. Its unique feature is that it is **trans-disciplinary.** Care and cure of the sick individual is central to the practice of family medicine and to the health of the family (Black 1977). But the work of the family medicine practitioner does not end there; it begins there. He studies the impact of individual illness on other members of the family and the community and takes appropriate protective measures. Illness can be both a rallying point and a stress factor in family cohesion. In other words, he relates his work to the whole family as a unit of care and then relates it to the community.

A family medicine practitioner is expected to provide **personalised and understanding care, accessible care** and **continuity of care.** There is undoubtedly a feeling of uncertainty that invests his work (Catlin 1982) but this is amply compensated by the personalised and understanding care that he provides and by his treatment of the patient as a **whole person**, performing a healing role and maintaining the **integrity of the patient's personality.** This type of physician performs an integritive function whereas a specialist is disintegrative in his approach.

Family medicine belongs as much to the academic realm within the universities and medical colleges as to the non-academic sector. It is a welcome step that the National Board of Examinations and the medical Council of India had already recognised Family Medicine as an academic area of study leading to certification on par with other postgraduate degrees. So far, 26 candidates had already qualified successfully in the Diploma of the National Board in Family Medicine. It is, however, regrettable that the universities and their constituent medical colleges have lagged behind and not yet opened their doors and set up Departments of Family Medicine for service, Education and research in this field. There is every reason for regarding family medicine as an academic discipline and for it to be a part and parcel of medical college faculties, moulding the attitute of students towards the practice of comprehensive health care, oriented to the concept of primary health care. Seen in its proper light, family medicine specialists will not be competitors to the other categories of specialists and super-specialists, nor should they be relegated to an inferior category of academic discipline. Its institution within medical colleges can play a significant role in orienting medical education to the goal of Health for All through the Primary Health Care Approach. Family medicine establishment is necessary for providing **cost-effective care** and for enabling specialists to reduce their work load in looking after general care problems so that they can function better in the practice of their own speciality.

Family medicine is a medicine that recognises the mind-body relationship and a deeper understanding of the psychosocial factors impinging upon disease expression. There are opportunities in family practice for recognition of early signs of disease, for taking steps for primary and secondary prevention, for studying natural history of disease and for early warning signals of impending outbreaks and disasters.

Key Note Address delivered on the 19th of August, 1984, in New Delhi, at the international Conference on Family Medicine.

The practitioner of family medicine relies to a large extent upon clinical observation methods. He scans the environment for any etiological clues.

The mother and child constitute a sub-unit of the family. Their health is an integral expression of family health and constitutes a substantial part of a family physician's work. The family contributes the immediate social environment in which the young child's growth and development takes place, and his future behaviour style is moulded. **Weaning** is the most critical period in a child's life, a period when the child passes from a liquid diet of milk alone to a mixed adult diet. While on mother's milk in the first few months of life, infants even from the most underprivileged sections of society grow well receiving from mothers' milk immunoglobulins, lymphocytes, enzymes and other protective substances. The weaning child is exposed to new foods, new activities and new environmental stimuli (Nutrition Foundation 1978). The extraordinary dependence of the human young upon adult care and caring provides an excellent opportunity for optimal growth and development by human care and for distorted development by human neglect (Ramalingaswami 1975). The practitioner of family medicine is in a most advantageous position to adopt a coordinated action based on a broad programme of health, nutrition, education and environmental diversity.

The pattern of family formation — the timing, spacing and total family size — exerts profound influence on the health of the mother and the child. Family planning improves the health of the mother and child and improved child health enhances the motivation for family planning. Here again, the family physician has the opportunity and faces the challenge of providing integrated comprehensive health and family planning services. Integrated package of services aimed at mothers and children at critical life points hold the clue to improved maternal and child health. While the focus on mother and child is of the essence, participation of fathers plays a supportive role and once again the family as a bio-social unit should receive focus. The health of the working adult, the care of aged and the mentally ill, are also within the ambit of work of the family practitioner. In the management of the mentally ill and the aged, the family and the community have a comforting, protective role to play. Family care contributes to a favourable outcome in schizophrenia.

Deep and fundamental changes are needed in the training of physicians to orient them to the whole family as the unit of care. Many countries are attempting to restructure their education programmes towards this end, particularly at the postgraduate level. There is, thus an unparalleled opportunity for the family health physician to follow up his work in the clinic with individual illness into the homes of people and into their community and deploying his knowledge and skills strategically in preventive work and in generating health consciousness as a way of life. These opportunities remain to be faced.

RESEARCH:

And now a word about research. Research is really an attitude of mind. It engenders an attitude of **critical inquiry.** The process consists of making observations which are objective and verifiable by others. The opportunities for research in family medicine lie essentially the area of **primary care improvement.** This type of research is **no inferior research** to the more acknowledged researches carried out in basic and clinical sciences in the research laboratories, universities and medical colleges. There are opportunities for a family medicine practitioner to undertake **clinical, epidemiological intervention, behavioural and educational researches** (The European General Practice Research Workshop 1983). There are no prescribed and specific research methodologies. The deployment of tools and the use of methods depend upon the problems to be studied. Most often, use is made of the clinical observational method. He may use simple tests. Out of his observations arises a problem and he develops a hypothesis and begins to test it. Now begins the research phase. He often needs a linkage with an academic institution if he is not already in it, and access to advanced laboratory methods, also access to data analysis systems. He need not be over-precise in the measurements he makes but the measures should be simple, reproducible with minor ranges of error.

We are familiar with the number of valuable contributions made by those engaged in the practice of family medicine to the advancement of knowledged over the years. Our pharmacopia had been so much enriched by those

engaged in family practice. **Epidemiological research** provides special opportunities in the work of a family medicine practitioner. This type of research establishes correlations which may not necessarily be causal relations. It identifies risk factors rather than specific agents. It requires no complex technology except in the field of data processing and so much has come out of these researches. The entire area of diseases which can be regarded as being related to behaviour, life styles and maladaptation, the diseases that are dominant today in the industrialised society and which are beginning to assume increasing importance in many developing countries, infact owes much to this kind of epidemiological research in which the family medicine practitioner can play an important role.

The **case study** as a research method is eminently suitable for a practitioner of family medicine. It is a detailed study of a single and well defined case in its natural environment. The case study is associated with a qualitative approach and in particular with the methods of anthropological and ethnographic research. It concentrates on a number of variables related to a limited number of people and events (Bryant 1983). The information is collected by an individual rather than by a large research team. The investigator serves as the primary research instrument and works in a setting in which he can make observations of a full cycle of events. The information is gathered through a variety of techniques such as interviews, direct observations, review of various records, reports, tests, etc. A note-book and a pencil are considered very important instruments. The whole story of Burkit lymphoma and its connection with a viral infection was unravelled by careful study and simple notes taken down at the time of interviewing patients.

The very nature of work of a family medicine specialist and the continuity of care and follow up that characterise his work, provide excellent opportunities for the study of **short-term and long-term side effects of new technologies and therapeutic modalities** that are being introduced from time to time, whether these are for the regulation of human fertility or for treatment of infectious diseases. There are also excellent opportunities for the study of teratogenic effects of therapeutic interventions made during pregnancy.

What are the leading causes of ill health in the community? What drugs should be supplied as a matter of priority? What is the economic burden of ill health of various sorts? What are the feeding habits, the weaning foods, the social history and outlooks of people and how do they influence the health of the growing child and in the expectant and lactating mother? How do cultural practices influence medical practice? What are the most effective methods for practising modern medicine in indigenous communities? Satisfactory answers to questions of this type can be obtained through research by the family medicine practitioner.

CONCLUSION

The lesson to be learnt is that family medicine presents excellent research opportunities as exciting and varied as those in any other speciality. Primary Care methods will benefit and so will medical education in terms of its relevance to society's needs. Ethical aspects must always be kept in mind when undertaking clinical trials with new drugs and when rendering counsel.

In the end, I would like to call upon the IMA College of General Practitioners to exhort their members to undertake research and I would like to extend from the Indian Council of Medical Research, our very sincere cooperation in making this possible.

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PSYCHIATRY IN GENERAL PRACTICE

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ABSTRACT

A survey covering 100 general medical practitioners on the prevalence of mental illness and prescription of psychotropic medication was carried out. The results showed that the average (mean) prevalence per year of five selected psychiatric conditions in general practice was as follows: psychoses (schizophrenia) 0.8%, neuroses 9.4%, insomnia 8.7%, child psychiatric problems 2.1% and impotence 5.9%. The most commonly prescribed psychotropic drugs were for schizophrenia — chlorpromazine and trifluoperazine; for anxiety neurosis — diazepam and chlordiazepoxide; for depression — amitriptyline and imipramine; for insomnia — diazepam and nitrazepam; and for impotence — testosterone and a testosterone — yohimbine combination. This study enables doctors to be aware of the current practice of psychiatry in general practice.

INTRODUCTION

This is a study to estimate the prevalence of psychiatric morbidity in general practice and the trend in psychotropic medication by family physicians in Singapore. Psychiatric problems constitute an important aspect of general practice. Shepherd et al (1981) (1) in their comprehensive investigation on the subject found a total psychiatric morbidity of 15% of which neuroses were 9%, psychosomatic disorders 5%, and psychoses 0.5%. The prevalence of psychiatric morbidity depends on the method of estimation, the criteria used, the actual psychiatric morbidity, the peculiarity of the community and the system of family medical pratice.

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METHOD

A one sheet questionnaire with prepaid envelope was sent to all the doctors of the Singapore Medical Association and all medical officers at the government out-patient clinics. The questions were divided into two sets. The first four questions asked for the prevalence of psychoses, neuroses, child psychiatric problems and sexual impotence. The next five questions asked for the type of medication prescribed in the treatment of psychoses (schizophrenia), anxiety neurosis, depression, insomnia and impotence. Other questions dealt with the practice and experience of the respondent (doctor).

RESULTS

There were 100 completed returns from general physicians, of which 66 were private general physicians and 34 government out-patient doctors. Profile of the doctors is shown in Table 1 below.

Table 1
PROFILE OF DOCTORS

Year of Graduation	1933-50	1951-80	No Reply
Private doctors	33	19	14
Government doctors	5	18	11
Total	38	37	25

Psychoses

The doctors were asked to estimate the percentage of patients aged 15 and above seen

for psychoses (eg. schizophrenia, mania). An analysis of the replies is shown in Table 2 below.

Table 2

PERCENTAGE OF PATIENTS SEEN FOR PSYCHOSES

Psychoses %	Nil	0.1-0.4%	0.5-0.9%	1.0-1.0%	2% & above	Total
No of replies	27	22	21	25	16	100

Mean = 0.86% Highest = 10%

As expected, the number of patients seen by general physicians for psychotic illness (mostly schizophrenia) is on the average less than 1%, mainly because the management of such patients requires special experience particularly during the acute phase of the illness. Schizophrenia constitutes about 65% of first admission, and about 75% of residual patients in Woodbridge Hospital. (2)

Neuroses

The doctors were asked to estimate the percentage of patients aged 15 and above seen for Neuroses (eg anxiety, depression, psychosomatic). An analysis of their replies is shown in Table 3 below.

Table 3

PERCENTAGE OF PATIENTS SEEN FOR NEUROSES

Neuroses %	1-4%	5-9%	10% & above	Total
No of replies	35	27	38	100

Mean = 9.4% Highest = 60%

The neuroses make up the largest number of psychiatric patients in general practice. In a survey by Kessel and Shepherd (1962) (3) covering 28 reports, neuroses was estimated to range from 4 to 70% depending on the method of estimation. The majority of the general practitioners reported 5-15% psychiatric morbidity. High percentage of neurotic conditions in general practice is expected as neuroses are fairly common conditions accounting for a prevalence of 5% to 30% in the general population from mental health surveys. (4) The mean of 9.4% in this survey corresponds closely with the more comprehensive study by Shepherd et al (1981) (1) who reported an average of 8.9% neuroses.

Insomnia

The doctors were asked to estimate the percentage of patients aged 15 and above seen for insomina only. An analysis of the replies is shown in Table 4 below.

Table 4

PERCENTAGE OF PATIENTS SEEN FOR INSOMNIA

Insomnia %	1%	2-4%	5-9%	10-14%	15% & above	Total
No of replies	16	24	32	13	15	100

Mean = 8.7% Highest = 80%

Insomnia is a very common symptom in psychiatric patients. A survey on the sleep habits of physically healthy subjects showed that up to 30% of the subjects had sleep problems but only about 1% required sleeping pills. (5) Insomnia can be due to a variety of causes including pain, physical discomfort, noise and strange environment but the majority of the patients who seek treatment for insomnia have underlying anxiety or depressive neuroses.

Child Psychiatric Problem

The doctors were asked to estimate the percentage of children aged 14 and below who were seen for psychological problems. An analysis of the replies is shown in Table 5 below.

Table 5

PERCENTAGE OF CHILD PSYCHIATRIC PROBLEMS

Children %	Nil	1%	2-9%	10% & above	Total
No of replies	34	47	14	7	100

Mean = 2.1% Highest = 30%

The results show that child psychiatric problems are seldom brought to the attention of the family doctors. Children with psychiatric disorder often present with behavourial problems. They are usually dealt with by social workers, guidance services and welfare agencies.

Impotence

The doctors were asked how many cases of sexual impotence they saw in one year? An analysis of the results is shown in Table 6 below.

Table 6

NUMBER OF SEXUAL IMPOTENCE SEEN IN ONE YEAR

Impotence (cases)	1	2	3-4	5-9	10 & more	Total
No of replies	11	23	15	14	23	100

Mean = 5.9 cases Highest = 50 cases

It is generally believed that impotence is not an uncommon condition, and such patients would probably seek treatment from their family physicians. But in this survey, the majority of the doctor (65%) could only recall less than 4 patients during the past one year. If the result of this survey is to be used as a guideline, the total number of people treated for sexual impotence by about 1000 general physicians would be about 6000 or less than 1% of the adult Singapore population per year.

Drug Treatment for Sexual Impotence

From the replies to the above question, the most commonly prescribed drug for sexual impotence is testosterone (41%) followed by Parsuma (27%), anti-anxiety drugs (14%), anti-depressants (3%) and neuroleptic (1%). Testosterone appears to be the drug of choice, as Parsuma is a preparation of which the active ingredients include also methyltestosterone, yohimbine and strychnine. Testosterone could only increase sexual interest in people with low sex drive. It does not increase erectile functions. (6) For the latter, anti-anxiety drugs should be more rational as erectile dysfunction is often associated with performance anxiety.

Psychotropic Medication

What drugs do you use for treating these conditions? The doctors were asked to write down the names of 2 drugs most frequently prescribed for schizophrenia, anxiety neurosis, depression and impotence. The results are shown in Tables 7 below.

Table 7

THE MOST FREQUENTLY PRESCRIBED DRUGS (FIRST CHOICE)

Schizophrenia	Anxiety	Depression	Insomnia
Chlorpromazine 46%	Diazepam 50%	Amitriptyline 55%	Diazepam 56%
Trifluoperazine 11%	Chlordiazepoxide 13%	Imipramine 6%	Nitrazepam 25%
Thioridazine 25%	Lorazepam 8%	Trimpramine 3%	Temazepam 5%

The above table show that general practitioners seldom prescribe second generation psychotropic drugs. This is especially true for government doctors who are restricted by the supply of only standard drugs in the government dispensaries.

This is the accepted practice in psychopharmacology because except for difference in side-effects there is no evidence from drug trials that one psychotropic drug is superior to another — whether they are neuroleptics, anti-anxiety drugs, anti-depressants, or hypnotics. However, the newer anti-depressants like nomifensine (Merital) and mianserin (Bolvidon), because of their relatively mild side-effects may be better accepted than the standard drugs. This also applies to some of the newer neuroleptics and short acting hypnotics. The latter because of their shorter half-lives may be preferable to the standard hypnotics in the short term management of insomnia.

Government and Private Practice

A breakdown of the types of psychiatric problems seen by Government Out-patient doctors and private general practitioners is shown in Table 8 below.

Table 8

PSYCHIATRIC PROBLEMS IN GOVERNMENT AND PRIVATE PRACTICES

	Government	Private	Combined
Psychoses	1.26%	0.69%	0.87%
Neuroses	5.6%	11.4%	9.4%
Insomnia	5.8%	10.1%	8.6%
Children	0.86%	2.7%	2.1%
Impotence	3.8 cases	7.0 cases	5.9 cases

Apart from the psychoses, the private doctors had a larger percentage of patients presenting with psychiatric problems.

CONCLUSION

The drawback of this study is a lack of uniformity in diagnoses and poor response, but the results appear to correspond closely to those obtained from other exhaustive studies. Such a study provides a useful feedback regarding the prevalence of the common psychiatric problems in general practice and the type of psychotropic medication prescribed by the doctors.

ACKNOWLEDGEMENT

The authors wish to thank the Singapore Medical Association, the Medical Director, Outpatients Services, Dr Ng Yook Kim and all participants for their assistance and co-operation.

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ORIGINAL PAPER

THE TOTAL CHOLESTEROL/HDL CHOLESTEROL INDEX IN THE ASSESSMENT OF HYPERLIPIDEMIA

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INTRODUCTION

During the past two decades considerable progress has been made in defining the importance of the plasma lipoproteins in the development of atherosclerosis in general and coronary heart disease in particular. Several controlled trials have provided suggestive evidence that reduction of plasma lipid concentrations may decrease the incidence of ischaemic heart disease and animal studies have shown that lipid lowering diets and drugs can induce regression of experimental atherosclerosis.

Lipid and lipoprotein studies in the past had generally emphasized the relationship of total cholesterol, low density lipoprotein (LDL), very low density lipoprotein (VLDL) and triglyceride to the risk of coronary heart disease (1-4). The higher the concentration of any one of these blood lipids, the greater the risk of coronary heart disease. On the other hand, recent epidemiological studies have shown up the role of the high density lipoproteins (HDL) which are inversely related to the risk of coronary heart disease (5-9); the lower their concentration the greater the risk of coronary heart disease. Subjects with high HDL levels also appear to have increased longevity (10). These reports supported by metabolic studies (7, 11), attribute to high HDL levels a protective role against atherosclerosis since this cholesterol represents the catabolic pool of cholesterol.

The Total Cholesterol/HDL Cholesterol Index

In previous epidemiological studies (12), the index of total cholesterol to HDL cholesterol has been reported to be particularly discriminating since it represents the relationship between the supply of atherogenic particles (LDL and VLDL) and the supply of HDL. It has also been shown to be correlated with the severity of coronary atherosclerosis as shown by coronary cineangiography (13). In a recent study (14) carried out on 572 asymptomatic airmen of the aerospace school of the United States Air Force, documented by coronary angiography in 132 subjects with positive ergometric responses, it was found that a total cholesterol/HDL cholesterol index of above 6.0 was the most discriminatory parameter for detecting coronary cardiopathy in asymptomatic individuals. This obervation regarding the predictive relevance of the total cholesterol/HDL cholesterol index has been endorsed by other studies (15).

In this paper the total cholesterol/HDL cholesterol index is related to the more traditional components of blood lipids to emphasize the need to look at more than just the absolute levels of the blood lipids and lipoproteins in the management of the asymptomatic patient at risk.

PATIENTS AND METHODS

Patients

213 females and 508 males who were referred to a private medical laboratory in 1983 for the determination of lipid parameters or for screening profiles which included lipid parameters were studied. All subjects were aged between 30 and 69 years of age. No clinical data were however available.

Laboratory Tests

Venous blood was obtained from all subjects

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who had been advised to fast for at least 10 hours overnight. These were allowed to clot at room temperature and sera were separated by centrifugation. A check on fasting was made by refrigerating an aliquot of serum overnight and examining it the following day. If a surface layer of chylomicrons was seen, it was presumed that that subject had not fasted adequately. 2 females and 4 males were excluded from the study population on this basis.

Methods and Materials

TRIGLYCERIDES

The Eggstein fully enzymatic method (16) was used for the assay of serum triglycerides. (A-gent triglycerides Kit).

TOTAL CHOLESTEROL

Total cholesterol was assayed with the cholesterol oxidase method of Allain et al (17).

LDL CHOLESTEROL

The method of Watson (18) was used to estimate LDL cholesterol. (Boehringer-Mannheim Diagnostic Kit).

HDL CHOLESTEROL

Thé LDL cholesterol was precipitated with Mn + + and heparin using the method of Burstein et al (19) and the supernatant assayed for HDL cholesterol using the method described by Allain et al (17) with a modification in the volumes used.

RESULTS

Tables 1 and 2 present the summary statistics of for the five lipid parameters for males and females respectively. In general, mean levels of Total Cholesterol (M 231.6 mg/dl; F 224.7 mg/dl), LDL-Cholesterol (M 182.0 mg/dl; F 168.2 mg/dl) and Triglycerides (M 172.4 mg/dl; F 150.6 mg/dl) for males were higher than for females. The mean total cholesterol/HDL cholesterol index (M 5.7; F 4.7) was also higher for males than for females who however had a higher mean HDL-Cholesterol (F 50.6 mg/dl) level than the males (M 42.9 mg/dl). These differences are all statistically significant ($p < 0.01$).

The results are consistent with the findings of other studies both among the local population as well as elsewhere in terms of both the frequency distributions of the HDL- and LDL-Cholesterols and Triglyceride as well as generally in the sex differences observed (2, 5, 20, 21).

DISCUSSION

No discussion of lipid profiles can be complete without touching on the concept of what constitutes normality in terms of the serum lipids. Applying standard statistical methods based on frequency distributions with appropriate transformations for the non-Gaussian distribution of the serum lipids is one. In so

Table 1
Descriptive Statistics of Serum Lipid Parameters in Males

	HDL	Cholesterol LDL (mg/dl)	Total	Total/HDL Cholesterol Index	Triglyceride (mg/dl)
Mean	42.9	182.0	231.6	5.7	172.4
Std. Dev.	10.3	47.6	47.8	1.8	100.1
Variance	106	2270	2288	3.4	10025
Std. Err. of Mean	0.46	2.12	2.13	0.08	4.46
Coeff. of Variation	24.0	26.2	20.6	32.2	58.1
Median	42	176	227	5.4	148
Mode	42*	200	222	5.0	74
Minimum	19	50	109	2.0	40
Maximum	88	395	357	16	657
Skewness	0.65	0.71	0.65	1.39	2.07
Kurtosis	3.9	4.7	4.5	7.0	8.3

*Multiple Modes

Table 2
Descriptive Statistics of Serum Lipid Parameters in Females

	HDL	Cholesterol LDL (mg/dl)	Total	Total/HDL Cholesterol Index	Triglyceride (mg/dl)
Mean	50.6	168.2	224.7	4.7	150.6
Std. Dev.	13.7	47.1	49.8	1.6	83.2
Variance	189	2218	2480	2.5	6923
Std. Err. of Mean	0.95	3.24	3.43	0.11	5.73
Coeff. of Variation	27.2	27.9	22.2	33.6	55.1
Median	49	167	222	4.4	121
Mode	55	195	191	3.3*	74
Minimum	19	48	102	1.4	40
Maximum	125	307	368	12.8*	580
Skewness	1.01	0.35	0.35	1.33*	1.44
Kurtosis	6.4	3.2	3.0	6.6	5.6

*Multiple Modes

doing however, definitions based either in terms of the upper 5 or 10 percent of a population or which is greater than 2 standard deviations from the mean would arbitrarily assign 5 to 10 percent of the population with a high risk label which may be biologically meaningless. Adopting a biological approach which would define normal values as those above which the risk of developing either atherosclerosis or ischaemic heart disease is increased is another. If one takes the latter approach, it would appear that the risk of developing ischaemic heart disease begins to increase steadily as the total cholesterol concentration rises above 180 mg/dl and becomes an important risk factor at levels of 220 mg/dl or more (24).

Using a total cholesterol/HDL cholesterol index of 6.0 as the cut off value, it is significant that amongst those with total cholesterol levels of 220 mg/dl only 16.89% had an index value above this whereas for those with total cholesterol values between 220-260 mg/dl and 260 mg/dl, 42.50% and 66.40% respectively had index values 6.0. Therefore, it is obvious that even amongst persons with total cholesterol values well within the 'normal range' there is a large group of persons at high risk. These, especially if asymptomatic, can only be picked up by the total cholesterol/DHL cholestterol index and appropriate treatment can be instituted prior to the development of symptoms. It is therefore considered worthwhile emphasizing that although an individual may be within the so called 'normal range' for a given population, this should not be taken to imply freedom from an increased risk of ischaemic heart disease consequent upon raised serum lipids.

LBL cholesterol and Tirglycerides will not be discussed further in so far as many studies (2, 5, 21-23) have shown that they are less significant as risk factors, after allowing for covariables, in the development of atherosclerosis or ischaemic heart disease than HDL cholesterol or total cholesterol either singly or in combination.

In conclusion, in view of the importance of HDL cholesterol in the interpretation of lipid profiles with regard to the risk of ischaemic heart disease it should be included in any investigation for hyperlipoproteinemia but great care must be taken with laboratory precision as there can be considerable inter-laboratory variation (25) particularly when manual methods are employed. When it is noted that a significantly high risk of ischaemic heart disease becomes evident at a HDL cholesterol concentration of 35 mg/dl, it is clear that any technical errors will have serious effects. Presently, a

good laboratory with automation can achieve a technical accuracy within 5 mg/dl in measuring this lipid. Prolonged venous occlusion prior to venesection should also be avoided as it can increase its concentration due to haemoconcentration (26). In practice however, the decision to prescribe lipid lowering therapy should not be based only on serum lipid levels. Other considerations such as the age of the patient, a family history of early-onset atherosclerotic diseases and the presence of other risk factors such as hypertension, diabetes, smoking, diet and alcohol, must also be taken into account. More generally, it must be understood that the serum lipids, in particular serum cholesterol, concentrations confer a graded risk; threshold values have not been shown to exist below which the ischaemic heart disease risk becomes nil. The saga of lipoproteins and ischaemic heart disease is however far from over as with better understanding and sophistication of techniques, the importance of the protein components of the lipoproteins, known as the apolipoproteins or apoproteins in the development of atherosclerosis in the absence of hyperlipidemia seems likely to attain greater prominence in future (27).

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HOME STUDY SECTION

SIGNIFICANT PROBLEMS IN THE FIRST 3 MONTHS OF LIFE

Dr K W Tan

The first 3 months of an infant's life are relatively 'quiet' months with fortunately few major problems, apart from some life-threatening respiratory conditions that manifest in the early neonatal period (Ref: Singapore Family Physician, Vol IX/No 3 P 140-142). These will not be dealt with in this article.

The more common significant problems that one encounters in a general practice in infants of the above age group are neonatal hyperbilirubinaemia, the crying baby, vomiting and diarrhoea.

I NEONTAL HYPERBILIRUBINAEMIA

Jaundice is common in the neonatal period. Visual inspection reveals an incidence of 50% in infants born at full term and at least 80% in those born before term. There are many causes of jaundice in the newborn, among which are the following:

1. Physiological jaundice in the newborn
2. Haemolytic jaundice in the newborn due to —
   a) Isoimmunization — Rh, ABO
   b) Extravascular haemolysis — resorption of cephalhaematomas and purpura.
   c) Congenital disorders of the red cell — congenital spherocytosis, G6PD deficiency.
3. Infections
   a) Bacterial
   b) Viral
   c) Other infections — toxoplasmosis
4. Obstructive jaundice
5. Other causes of neonatal jaundice
   a) Hypothyroidism
   b) Breast milk jaundice
   c) Drugs — Sulphonamides

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Differential diagnosis of jaundice

An important clue in arriving at the correct diagnosis is supplied by noting the day of appearance of the jaundice.

Jaundice appearing in the first 24 hours of life

This is almost certainly a haemolytic jaundice due either to ABO incompatibility, other blood group incompatibilities or G6PD deficiency. Early jaundice may also be the first sign of intrauterine infection due to the Cytomegalovirus, Toxoplasma or Rubella.

Jaundice occurring after the First Day

Jaundice occurring on the second or third day of life is most likely to be due to physiological jaundice of the newborn, but again if the infant appears sick, with enlarged liver or spleen, then other causes must be sought.

Jaundice occurring beyond the fourth or fifth day of life

This can be accepted as not being due to haemolytic disease, and generally one must be on the lookout for bacterial infection of the urinary tract or septicaemia. Intra-uterine infection and drugs must also be considered.

Jaundice persisting beyond the first week of life

If bilirubin is mainly in the inconjugated form, and the abovementioned causes have been excluded, then breast-milk jaundice, hypothyroidism and other less common causes of jaundice may be considered.

If the bilirubin is mainly in the conjugated form, then an anatomical obstruction or neonatal hepatitis is the most likely cause.

Clinical Management of Jaundice

Undoubtedly, physiological jaundice and jaundice due to ABO incompatibility are the causes most commonly seen. However, bacterial infection should be considered and

appropriate history and physical examination carried out to exclude sepsis.

Babies delivered in Singapore hospitals are routinely screened for G6PD deficiency and results indicated on the mother's discharge card.

If breast-milk jaundice is suspected, artificial feeding is recommended for a trial period and observation for resolution of jaundice is useful.

Haemolytic jaundice should be referred to hospital in view of its rapid onset and progression.

Phototherapy

Phototherapy is instituted in term babies when the serum bilirubin is 15 mg and above, and in low birth weights at bilirubin levels of 12 mg or less depending on the weight and gestational age of the baby. In the home, mothers can be advised to expose the baby in a bright warm area, away from draught, during the day. On no account should baby be exposed directly to sunlight as this has resulted in quite a number of babies developing hyperpyrexia!

Exchange Transfusion

Term babies are exchange transfused when their bilirubin level reaches 20 mg/dl. Low birth weight babies are similarly treated at lower bilirubin levels depending on their gestational age, weight and presence or absence of other risk factors such as hypothermia, acidosis, haemolysis, infection, hypoxaemia among others.

II THE CRYING BABY

By far the commonest causes of crying in the newborn period are discomfort and loneliness. The chief cause of discomfort is hunger. On a self-demand schedule, crying is quickly checked by a feed, provided the quantity is adequate. Crying from hunger may also be due to fixed ideas of the duration of feeds or the quantity the infant should take. Babies are individuals and some suck better and more quickly than others. Rigid rules for the duration and quantity of feeds should not be laid down.

Another cause of discomfort in the newborn is flatulence and the commonest cause of this is too small a hole in the teat. The hole should be tested for patency and adequacy before every feed. Often the hole is tested when the bottle is filled with water. This is undesirable because water will flow more easily than milk. When the bottle is inverted the milk should drop out at the rate of several drops per second without any shaking of the bottle. The patency of the hole should be tested before every feed, because it readily becomes blocked up, particularly if powdered milk is used.

It is very common in the case of a baby suffering from excessive wind to find that the feed is taking 30 to 60 minutes. No feed should take longer than 20 minutes if the hole in the teat is large enough.

Too large a hole in the teat is also a cause of trouble. If the hole is too large the baby is likely to gulp milk down and swallow air in the process.

The correct feeding technique must be taught including the technique of burping the baby at the end of the feed.

It will be seen that in investigating the cause of excessive flatulence in a bottle-fed baby, a careful detailed history is essential. It is always necessary to see the bottle to test the patency of the teat personally.

Other causes of crying are overclothing, excessive heat or cold, a wet or soiled napkin, an itching rash or an unpleasant smell or taste, such as that of vomit.

The 3-month colic

Characteristics

1. It occurs usually in the first 3 months of life and lessens with age.
2. The cry is usually not in relation to particular events although it tends to occur more often in the evening and night, in association with feeding and when obvious discomfort occurs such as a wet or soiled napkin.
3. During the crying episodes, the abdomen is distended with gas and flatus is usually passed although flatus is not the cause of the problem.
4. Parents say that the babies draw their thighs on to the abdomen when they cry and become suffused in the face.
5. The duration of a crying period is about ½ hour to as long as 3 hours with short intervals of "rest".
6. The crying is not due to hunger because

often an offered feed makes no difference.

7. Often the crying would stop if the baby is cuddled, talked to, or rocked and fondled. When this stops, the crying is resumed.
8. Inspite of these crying episodes, the babies are healthy, gain weight and is usually a picture of normal health.
9 The parents are usually distraught.

Aetiology

The cause is not known.

Drugs in Treatment

Antispasmodics such as Piptal and Gripe Water and Carminatives, Alcohol and Phenobarbitone have been proven beyond doubt to be no better than placebo in reducing crying episodes.

Management

This is a condition with an unknown cause which unsettles the parents a great deal despite the natural history of self-resolution and the baby continuing to thrive. The best approach to management is as follows:

1. Take a good history and be prepared to listen to the parents' problems — they are real.
2. Make sure an organic lesion is not missed, eg intussusception, otitis media, other infections, etc.
3. Once it is sure that it is the infantile colic syndrome, parents must be told the facts and given support.
4. If the parents are at the end of their tether, baby can be warded for a few days, and mothercraft instruction started.
5. Baby is weighed daily and weight gain shown to the mother.
6. Ask every week, how much percentage is the crying reduced. Invariably, the parents are happier by 2 to 3 weeks when they become convinced the crying is less and that in just a few more weeks the baby would stop its shrieking spells.

III VOMITING

Vomiting in the young infant may be a symptom that causes concern regarding diagnosis, or it may be an extremely dangerous feature in its own right. It can mean anything from the trivial to the critical.

Vomiting has been estimated to occur in up to 20% of newborn and in most instances is not of severe import. The commonest identifiable cause of neonatal vomiting is swallowed liquor amnii. On most occasions neonatal vomiting is of unknown cause and is self-curing.

Dangerous conditions of which vomiting is a symptom can be grouped roughly as medical and surgical, the latter implying anatomical disorders of the gut involving active surgical management.

Intestinal obstruction in the neonate can be due to:

Duodenal atresia
Annular pancreas
Malrotation of the gut
Jejunal atresia or stenosis
Meconium plug
Hirschsprung's disease
Anal stenosis or atresia

Half the babies with duodenal obstruction have Down's Syndrome, producing an ethical problem.

Generally, the above conditions would have been detected early and referred to hospital.

Other surgical conditions which may present with vomiting are:

(i) Torsion of the testis, diagnosis of which requires simply that the scrotal contents be checked.
(ii) Obstructed inguinal hernia, to which the same comment applies.
(iii) Appendicitis, which can be very difficult to diagnose because of the poor localization of inflammation in the neonate.

Medical Conditions

An infant may vomit simply because he is ill — quite non-specifically. On the other hand, vomiting may be an indication of some specific underlying cause. Such causes include any of the following:

(i) Brain injury due to asphyxia or haemorrhage.
(ii) Sepsis. **The previously normal baby who starts vomiting for no apparent cause connotes sepsis as the first thought.**
(iii) Metabolic disorders
(iv) Renal failure
(v) Narcotic addiction — other symptoms of withdrawal may be apparent.

Recurrent Vomiting

Pyloric stenosis rarely starts from birth and occasionally symptoms may begin from the age

of one week. It is common for vomiting in the early phase to be nothing like the textbook description of projectile vomiting, a very hungry baby with a lean sunken abdomen and presenting a palpable tumour in the right hypochondrium. It is wise to refer to hospital babies with recurrent vomiting of any severity.

Most recurrent vomiting in the later neonatal period does settle spontaneously. Some relates to getting a rhythm of feeding. Some represents possetting or regurgitation without in any way stopping the baby from growing.

The largest recognised identifiable pathological group is that of reflux — incompetence of the cardiac sphinster mechanism. The treatment is to prop up all 24 hours of the day and to thicken the feeds with Nestargel (Nestle) or Carobel (Cow and Gate).

IV DIARRHOEA

Fortunately diarrhoea is not common in the first 3 months of life but when it does occur, it can be serious and life-threatening. On the other hand many infants are said by their mothers to have diarrhoea when in fact their stools are normal.

Fully breast-fed babies always have loose stools. Their stools are explosive, contain curds (in the early weeks) and may be green in colour. Furthermore, they may be frequent, as many as 24 stools in the 24 hours. Fully breastfed babies virtually never suffer from gastroenteritis.

The so-called starvation stools may be confused with diarrhoea. These are loosen green frequent small stools, containing little faecal matter. They are due to gross deficiency of food intake. It is a disaster if further restriction of food occurs on the grounds that the infant has gastroenteritis.

It is always important to see the stools if there are reasons for doubting the mother's story.

When a baby presents with true diarrhoea, the following conditions should be considered:

Too much sugar in the feed.

Gastroenteritis

Diarrhoea in association with parenteral infection.

Hirschsprung's disease (spurious diarrhoea)

Carbohydrate intolerance and malabsorption

Protein-losing enteropathy

Drugs.

When artifically fed babies develop diarrhoea, the likely causes are an excess of sugar in the feed or gastroenteritis. When there is mild chronic looseness of the stools, cut out the sugar altogether to determine whether it is the sugar which is the cause of the trouble.

Infective gastroenteritis is most commonly due to contamination of food or it may be due to a respiratory tract virus. The baby's state of hydration should be assessed and baby referred to hospital if there is any evidence of dehydration. This would be imperative if vomiting is present at the same time as it does not take long for baby to develop hypoglycaemia in addition to the other problems associated with gastroenteritis.

Mild gastroenteritis may be treated on an outpatient basis. Oral dehydration may be effected with withdrawal of milk feeds and giving the baby Dextrose-saline consisting of 3.75% Dextrose and 0.25 normal Saline in the volumes that baby normally takes plus an additional 5% (in terms of baby's weight) for ongoing losses. If improvement is seen over the next 24 hours, ¼ strength milk may be reintroduced and subsequently graduated milk strengths given over 24 hour to 48 hour periods.

Not uncommonly, the infant with gastroenteritis develops secondary carbohydrate intolerance and depending on whether one thinks it is lactose intolerance or lactose-sucrose intolerance, Cow and Gate Formula S (or Prosobee) and Pregestimil can be given respectively starting with ¼ strength in the former and 1/8 strength in the latter. This is increased gradually to full strength feed and continued for 3 to 4 weeks after which the original cow's milk may be cautiously re-introduced.

Rice-water is not recommended for several reasons. Firstly, small infants may not be able to obtain adequate calories from the complex carbohydrate found in rice water. Secondly, it is deficient in electrolytes and unless electrolyte supplements are given, severe complications may result. Finally, it is not uncommon to find mothers continuing to give rice-water to their babies for long periods thinking that as this product was recommended by the family doctor in the first place, it must be good for the baby. Under-nutrition must surely result from this.

HOME STUDY

BACKACHE
ITS SIGNIFICANCE, CAUSES, INVESTIGATIONS AND MANAGEMENT

Dr C H Tay

INTRODUCTION

Ever since man assumed the upright posture, backache (lumbago) or back pain has been an integral part of life and it is said that 80% of us will experience this symptom sometime in our life-span!

Although a very common complaint, backache is one of the most perplexing and ill-understood of all diseases as multiple aetiologies may be operating in an individual patient. For the doctors, it tests their diagnostic skill and patience.

SIGNIFICANCE

Millions of people suffer from varying degrees of backache and billions are spent annually in their treatment. True incidence of this malady is difficult to estimate since backache can be caused by numerous conditions (a few are shown in the Table) and milder aches and pains are generally not treated in public institutions. However, in many western countries, statistics extrapolated from medical records and figures from industrial and insurance firms generally confirm backache/back pain as a major orthopaedic problem. In Britain for instance, more than 20 million working days are lost each year by the employed population. Average absence from work for those on the sick list was 33 days and average time away from work was 5 weeks in one year.

The magnitude of this problem in Singapore is not known at present but in time to come the incidence will increase due to our rapid industrialisation, change of life style and ageing of our population. Some preventive measures might be needed to overcome the wastage of manpower and financial loss caused by this 'disease'.

Mt Elizabeth Medical Centre

APPROACH TO A CASE OF BACKACHE/BACK PAIN

Since the causes of backache/back pain are numerous, (see Table) it is important to take a careful and detail history and to perform a complete physical examination prior to investigations.

HISTORY

Age: Children — congenital deformities, osteochrondritis and infections are more common.

Adults — mechanical stress, injuries, inflammatory diseases e.g. ankylosing spondylitis.

Elderly — degnerative, malignancies or metabolic disorders.

Sex: Higher incidence of osteoporosis of the spine in older women. Men are more prone to physical injuries.

Occupation: "Blue collar" workers are more prone to trauma and mechanical injuries. "White collar" workers tend to have postural strain and 'fibrositis'.

Hobbies and games: Excessive exertion and repetitive exercises often cause mechanical stress and strain to the spine.

Family history: may be present in inflammatory conditions e.g. Ankylosing spondylitis, Rheumatoid arthritis, also present in some congenital abnormalities.

Past history: Important to know any previous systemic or spinal diseases, any surgeries, allergies, injuries, types of medication etc.

Present history

1. **Constitutional symptoms** — e.g. fever (possible sepsis/malignancy), weight loss (malignancy/chronic infection); malaise,

Table

CAUSES OF BACKACHE/BACK PAIN

A. **ACUTE BACKACHE/BACK PAIN**

(1) **Intervertebral disc lesions** — Tears of annulus fibrosus or disc herniation with nerve-root compression.

(2) **Intervertebral joint derangements** — Subluxation of apophysial joints.

(3) **Fractures of Vertebrae** — Body, Pedicle or Articular process — due to trauma, sequel of metabolic bone disease or vertebral tumours.

(4) **Soft tissue lesions** — sprains or tears of dorsal muscles or spinal ligaments.

B. **CHRONIC BACKACHE/BACK PAIN**

(1) **CONGENITAL DEFECTS and DEFORMITIES**

a) Postural abnormalities — e.g. kyphosis, lordosis or scoliosis, deformities of hips, knees and feet throwing strains on spine.

b) Congenital defects of vertebrae, e.g. spina bifida, lumbarization of 1st sacral segment and sacralization of 5th Lumbar body, spondylolysis with defect arch, due to stress fracture leading to spondylolisthesis.

c) Acquired deformities — kyphosis (adolescent, senile or due to vertebral disease e.g. TB scoliosis (paralytic, myopathic or secondary to inequality of legs)

d) Loose back syndrome — hypermobile spine or part of generalised hypermobility.

(2) **TRAUMATIC and DEGENERATIVE LESIONS**

a) Injuries of intervertebral discs or joints or ligaments,

b) Osteoarthrosis, lumbar spondylosis

c) Instability syndrome e.g. spondylolisthesis

d) Lumbar spinal stenosis

(3) **INFECTIOUS LESIONS OF THE SPINE** e.g. TB, Typhoid, syphilis, pyogenic infection (osteomyelitis), undulant fever.

(4) **METABOLIC BONE DISEASES** e.g. Osteoporosis, osteomalacia, osteitis fibrosa in hyperparathyroidism.

(5) **UNKNOWN AETIOLOGY** e.g. Ankylosing spondylitis, Rheumatoid arthritis, sero-negative spondylarthropathies, osteochondritis, Paget's disease.

(6) **NEOPLASMS OF THE SPINE and SPINAL CANAL**

Benign: Osteoma, neurofibroma, angioma,

Malignant: Primary or secondary carcinoma, sarcoma, glioma, meningioma, Multiple myeloma; Reticulosis e.g. Hodgkin's disease.

(7) **PSYCHOGENIC** e.g. anxiety, depression, compensation neurosis, malingering, hysteria.

(8) **PAIN REFERRED FROM VISCERAL DISEASES**

a) **Renal disorders** e.g. renal stone, cancer, abscess, polycystic kidney, hydronephrosis.

b) **Cardiovascular disorder** e.g. aneurysm, spinal haemorrhage, syphilis, enlarged left atrium in mitral stenosis.

c) **Pelvic disorders** — Male: cancer of prostate or rectum; Female: salpingitis, uterine tumour/infection, TB, ovarian cyst, prolapsed/retroverted uterus.

d) **Gastro-intestinal disorders:** peptic ulcers (penetrating pancreas), cholelithiasis, Pancreatic tumour or pancreatitis, neoplasm of gut.

e) **Blood disorders:** acute haemolytic crisis, sickle cell crisis.

(9) **MYOFASCIAL BACK PAIN** (Fibrositis)

chest pain, dysfunction, diarrhoea etc, may suggest underlying systemic diseases.

2. **BACKACHE or Back pain:**
   a. **Onset: Acute or Sudden** — trauma, haemorrhage, infection, *Chronic or gradual* — degenerative, neoplastic, metabolic causes.
   b. **Duration:** Shorter duration — trauma, stress etc; longer duration — degenerative conditions.
   c. **Localisation** of aches/pain: may or may not indicate the exact site of lesion.
   d. **Distance and direction of radiation:** may indicate which nerve or nerve root is affected.
   e. **Factors alleviating and aggravating the pain:** may indicate muscular spinal or intraspinal lesions.
   f. **Is pain intermittent, constant** and/or **more severe?** — suggestive of expanding lesion.
   g. **Is pain associated with stiffness?** — possible relationship to arthritis and spondylitis.
   h. **Is pain associated with numbness or weakness of limbs?** — Nerve or cord compression likely.
   i. **Is pain worse at night?** — May be referred pain or spinal tumour or inflammatory disease.
   j. **Is pain associated with changes in bowel, urinary bladder or/and sexual functions?** — lesion of spinal cord, especialy at cauda equina.
   k. **Is pain associated with claudication** followed by numbness and and tingling of limbs? — spinal stenosis should be suspected.
   l. **Is pain associated with a painful vesicular rash?** — Herpes zoster is suggested.
   m. **Is pain associated with specific skin lesions?** — e.g. psoriasis, Reiter's syndrome, Behcets' syndrome, Reticulosis etc.
3. **Other histories:** Any conflict or stress at home, in school or at work? Any mental illness? Is the patient expecting a secondary gain from his illness? Any litigation?

PHYSICAL EXAMINATION

Inspection: Observe the patient when he enters. The severity of his backache may be

assessed if he walks in with difficulty, with pain or with aids. Watch how he stands, sits, rises, squats and turns. While disrobing, observe his performance and then inspect his spinal column, skin and soft tissues. Congenital or acquired structural abnormalities can be detected. Ask him to flex, extend and lateral rotate his spine and note the degrees of mobility, the presence of any rigidity, spasm and pain during the exercise. Symmetrical loss of spinal motion denotes inflammatory or degenerative diseases while asymmetrical loss may indicate disc disorders. Watch for inequality of leg length and other pathology of the lower limbs which could contribute to the backache.

Palpation: The observed abnormality should then be palpated and pain reproduction is sought. Tender myofascial points could be elicited by finger pressure. A 'step' due to spondylolisthesis can also be palpated.

While the patient is bent over the examination table with knees flexed, firm percussion in the centre and sides of the spinal vertebrae may reproduce pain in patients with sciatica. Tenderness in the sciatic notch may indicate a herniated nucleus pulposus, piriformis or myofascial syndromes. With the patient supine on the examination bed, his chest and abdomen are carefully palpated. Chest circumference and expansion are taken especially in cases with ankylosing spondylitis.

Ausculate his heart and lungs and listen for bruits in the abdomen, iliac and femoral vessels. Next, examing the following joints — cervical, shoulder, elbow, wrist, hip, knee and ankle. Note any pain, swelling, muscle spasm or limitation of movement in these joints.

Straight-leg raising test (SLR) or Lasegue's sign should be done on both sides. Positive sign is not necessarily indicative of dural stretch from sciatic nerve irritation but may be present in any condition that causes hamstring muscle spasm. Femoral nerve irritation can be produced by passive flexion of the patient's knee in prone position, causing pain in front of the thigh.

A complete neurological examination is essential — this includes assessment of mental status, central and peripheral neurological evaluations. Look especially for any evidence of compression neuropathies or cord lesions.

Examination of other systems is necessary to exclude backache referred from other body organs.

INVESTIGATION

A tentative diagnosis could have been made after the history and physical examination, and investigations are mainly employed to establish the diagnosis or to exclude some important differential diagnoses.

Blood counts are useful for detecting systemic conditions such as those conditions associated with anaemia, infection and leukemic states. ESR is an inexpensive and excellent test for inflammatory diseases, acute or chronic infections, tumours and myelomatosis. Routine urinalysis helps to exclude diabetic states, renal and hepatic disorders. Expensive biochemical tests are reserved for cases suspected of various systemic disorders as shown in the Table. Useful ones include serum calcium, serum alkaline and acid phosphatase, serum protein electrophoresis and others. HLA B 27 determination and other tests should be performed if appropriate.

Radiographic examination of the spine for basic assessment should include anteroposterior (AP) and lateral views. Additional views are helpful in certain circumstances e.g. sacroiliac joints, left and right oblique view of spines, AP view of the pelvis. Special radiographic techniques including tomograms, computed spinal cord scan as well as the invasive myeleogram should best be done in consultation with orthopaedic surgeons. Osteoarthritic changes are common in older people and these are not necessarily indicative of spinal diseases

MANAGEMENT OF THE COMMON CAUSES OF BACKACHE/BACK PAIN

1 INTERVERTEBRAL DISC LESIONS

Lumbar disc herniation is due to trauma and degeneration of annulus fibrosus resulting in protusion of nucleus pulposus either (a) posterolaterally, compressing the emerging nerve roots with the production of Sciatica, or (b) posteriorly, compressing the spinal cord (rare) with symptom of low backpain. Typically, acute 'lumbago and sciatica' occurs at any age and it may follow slight trauma or strain such as sudden spinal flexion e.g. bending to lift a heavy weight. Lumbar pain may appear suddenly or insidiously and the severity of pain

may build up and last 5-6 weeks if not treated. This may or may not be followed by sciatica - a severe shooting pain in one or both legs in the distribution of involved nerve roots, usually aggravated by coughing, sneezing or bending. Usually there is associated paraesthesia in the sciatic distribution. Local tenderness over the affected disc/discs, spasm of paravertebral muscles and diminished spinal mobility will be detected. Straight leg raising test is usually positive on the side of the affected nerve roots. If positive on both sides, disc lesions associated with spondylolisthesis should be suspected. Neurological examination of the lower legs may indicate which lumbar roots are affected. e.g. **lumbar 3rd root involvement** — motor weakness of hip flexion and knee extension, sensory changes in medial side of the thigh and reduced knee jerk; **lumbar 5th root involvement** — motor weakness of foot eversion and hallux dorsiflexion, sensory changes the lateral side of the leg, dorsum of the foot and hallux. The ankle jerk may be reduced.

Intraspinal lumbar tumours may also present with sciatica, but symptom usually occurs spontaneously during sleep and there is a lack of intermittency of pain. Physical examination may fail to demonstrate positive signs of spinal disease (motor weakness, reflex changes) and sciatica may not be related to increase in intra-abdominal or intra-thoracic pressure or hyper-extension of the spine.

Investigations: AP and lateral views of the lumbar spine and pelvis should be radiologically examined for evidence of disc narrowing, presence of degenerative joint disease, vertebral disease or injuries, congenital defects, inflammatory spondylitis, or unstable vertebrae (Xrays in flexion and extension). Myelogram is employed to exclude neoplasm and to identify disc protusions prior to surgery. Bone scan with isotope is useful in suspected cases of tumour or Paget's disease. Computer spinal cord scan is a valuable but expensive procedure to detect minor changes in the cord, roots or vertebrae.

Treatment of Lumbar disc lesions

(1) Conservative treatment of acute disc lesions

(a) Complete bed-rest for 1-2 weeks with adequate analgesia. Pain and muscle spasm may be relieved by local heat, cooling spray or local infiltration of tender areas with xylocaine. Hard bed with fracture boards, low pillow, and no active exercise are recommended at this stage. More severe cases are hospitalised and placed on 'continuous leg traction' which may help to pull away fragment of disc from the nerve root as well as to ensure bed-rest.

(b) Plaster or polythene jacket may be used in acute backpain in lieu of bed-rest. In the recovery phase, corset and gentle extension exercise should be introduced after removal of the jacket.

(2) Conservative treatment of subacute and chronic disc lesions

(a) Physiotherapy: Back extension and/or flexion exercises preceded by heat or ice applied to the lumbar spine.

(b) Mobilization by means of gentle manipulation (without anaesthesia), unless there are signs of nerve root pressure or cauda equina syndrome.

(c) Instruction in correct posture and back discipline e.g. for bending, lifting and carrying.

(d) Provision of lumbosacral support: corset or brace.

(e) Intermittent lumbar traction for 30-50 minutes at a time. This is especially useful for persistent sciatica in the presence of good back movements.

(f) Change of work to that which do not involve bending, lifting or climbing.

(g) Muscle-strengthening exercises for those with hypermobile back ("Loose back syndrome").

(3) Operative treatment

The indications are:-

(a) Cauda equina lesions.

(b) Progressive muscle weakness due to root pressure.

(c) Persistent sciatica with neurological signs. not relieved by conservative treatment.

(d) Severe disc lesions associated with certain congenital abnormalities or gross spondylolisthesis.

Operation — laminectomy with removal of protruded nucleus and freeing of nerve roots, with or without spinal fusion.

2. LUMBAR SPONDYLOSIS (OSTEOARTHRITIS)

Degenerative joint disease affecting the lumbar vertebrae and intervertebral discs may cause backache, stiffness and sometimes, sciatica due to pressure on nerve roots by

associate osteophytes or protruding discs. Pain is felt at midline, worse towards the end of the day and is not aggravated by coughing or sneezing. There is mild kyphosis due to osteoporosis and local tenderness and spinal immobility. Straight leg raising and femoral nerve stretch tests are absent and no neurological deficits present in both legs.

Radiological findings usually show narrowed disc spaces, occasional calcified discs or ligament and prominent osteophytes, the larger ones may bridge vertebrae. The presence of apophysial osteoarthritis is shown by the narrowing and irregularity of join spaces and subchrondral sclerosis.

Treatment: For most cases, analgesics, exercise therapy, spinal support and manipulation are required. Operation is seldom indicated.

3. SPINAL STENOSIS

The spinal canal may be narrowed centrally or laterally by congenital or developmental diseases e.g. spondylolisthesis, or by acquired diseases e.g. prolapsed discs, osteophytes, Paget's disease, fluorosis etc. Typical symptoms of spinal stenosis include nerve root irritation and vascular embrassment due to disturbance to cauda equina blood supply. Symptoms resemble intermittent claudication but there are many differences in clinical presentations:- (1) peripheral pulses are present in both legs; (2) On walking, there is no cramp, but weakness and paraesthesia are felt in the back and legs; (3) pains are eased by sitting and flexing the spine; (4) Walking uphill is better than downhill as lumbar extension aggravates pain; (5) There may be bowel and bladder symptoms. These are rarely present in intermittent claudication.

Spinal stenosis commonly involves males over fifty years old with a long history of backache but with recent development of sciatica. Myelography and computer tomography are employed to confirm the diagnosis. Surgical intervention should be carefully considered after exclusion of other treatable spinal disorders.

4. MYOFASCIAL BACKPAIN ("Fibrositis")

This disorder affects up to 80% of patients who consult the doctor with low backpain and in whom no other cause is evident. The pain, which may involve the gluteal fascia, the iliocostalis, sacrospinalis and other muscles or interspinous bursa, is often described as a constant dull ache that waxes and wanes; it is worse with working, chilling and sitting but improved with heating, walking and bed-rest. History of trauma is seldom obtained but it is possible that repeated minor trauma, misuse strain and/or a chronic pain-spasm-pain cycle are operational. "Trigger points" can be palpated and pain reproduced. Local anaesthetic injections of these myofascial 'trigger points' often abolish the pain in the vast majority of patients. Muscle relaxants have had some advocates and physiotherapy will avert early relapse of the symptom.

5. PSYCHOGENIC BACK PAIN

Although only 2% of patients with backpain or backache present with this problem, the final diagnosis is usually arrived with difficulty — usually by excluding organic disorders and by a careful personal history since clinical signs are usually wanting. The patient's history is vague, often places emphasis on blaming others for the pain. There may be a record of personal conflict, poor educational background, history of loss of appetite, decreased libido, poor sleep patterns and other symptoms of anxiety, depression, or suicidal tendency. Some are malingerers, others are after financial gains from compensation. Majority are anxious subjects who are not able to cope with everyday stress. Psychological assessment and management will be necessary but the physician must first rule out underlying systemic diseases.

6. INFLAMMATORY SPONDYLITIS

(a) Ankylosing spondylitis: This disease affects young male adults who present with low backache or pain and stiffness and with progressive immobility of the spine spreading slowly from the lumbar to the thoracic and cervical vertebrae. In later stages, there is ankylosis of sacro-iliac joints, inflammatory arthritis of synovial joints of peripheral limbs, iritis, aortitis and respiratory embrassment from immobility of the rib cage. Xrays usully reveal inflammatory changes in the sacroiliac joints and intervertebral bodies such as erosions, ossification of disc margins and spinal longitudinal ligaments, formation of syndesmophytes and later, the development of the classical "bamboo" spine. ESR is raised in activity and Rheumatoid factor is absent. HLA B 27 antigen is present in 90% of this disease. Family members

especially the males might possess this antigen and sometimes the disease as well.

Other inflammatory spondylarthropathies e.g. Reiter's sydrome, psoriasis, rheumatoid arthritis, Crohn's disease, ulcerative colitis, etc — may present with acute or chronic backpain due to inflammatory changes in the sarco-iliac joints, apophysial joints costo-vertebral joints or atlanto-axial joints. However, in these conditions, there are typical skin and peripheral joint involvement. ESR is high in the active phase and radiological changes in the spines are less obvious than those found in ankylosing spondylitis. A small percentage of cases may also possess the HLA B 27 antigen.

Management of Inflammatory spondylitis:— Bed-rest during the acute stage of the disease, supported by heat, anaglesics and anti-inflammatory non-steroidal drugs e.g. Indomethacin, naproxen or phenylbutazone. Steroids are contra-indicated. When pain has diminished, spinal exercises to retain mobility and prevent deformity are commenced.

7. OSTEOPOROSIS AND OSTEOMALACIA

Osteoporosis commonly presents as backpain with segmental nerve root radiation. Pain is aggravated by sitting and movement of the spine, and patient is often disturbed by muscle spasm at night. Dorsal kyphosis, 'dowager hump' and loss of height are noted. The most common vertebrae involved by osteoporosis are T 12 and L 1. Sometimes, limb fracture or periodontal disease may precede the spinal symptom. Many patients have a combination of both osteoporosis and osteomalacia — the former are caused by loss of osteoid and mineral, the latter is related to mineral loss only. Aetiology of osteoporosis is uncertain but factor strongly implicated are oestrogen deficiency, old age, genetic factor, physical disuse, prolong steroid therapy and others. Secondary osteoporosis may be caused by primary or secondary malignant disease, multiple myeloma and other causes of osteomalacia e.g. malabsorption, long-term phenytoin therapy etc. Radiological spinal changes include varying degrees of spinal wedging, collapse, codfish deformity, vertebral end-plate irregularity and generalised demineralization. Pseudofractures (Looser zones or Milkman's line) are pathognomonic for osteomalacia but it is only found in less than 10% of patients. Diagnosis of osteomalacia is arrived after determination of serum calcium, phosphorus, alkaline phosphatase, Vitamin D levels, thyroid and parathyroid function tests and sometimes the use of bone scans. Definitive diagnosis is established by bone biopsy.

Management: Goals of management are (1) to alleviate symptoms e.g. analgesics and temporary wearing of braces; (2) to remove aggravating factors e.g. steroids, prolonged bed-rest; and (3) to arrest disease progression e.g. exercise, high calcium diet intake and the use of drugs such as oestrogen, fluoride, calcitonin (controversial) and high doses of Vitamin D.

8. SPINAL TUMOURS

Primary benign and malignant tumours of the vertebra are rare. Commonest vertebral neoplasms are secondary deposits from primary carcinoma of the lung, breast, prostate, thyroid, kidney or gut. Clinical presentation may vary according to site and character. Symptoms may be those due to (1) local destruction of the skeleton — e.g. localised back pain of constant and increasing severity, spinal deformity (kyphosis) from collapse of bony structures, restricted spinal movement and muscle spasm; (2) compression of the spinal cord or its meninges e.g. girdle pain if thoracic nerve root is compressed, sciatic pain in lumbar root involvement and progressive sensory and upper motor neurone paralysis or bladder and bowel dysfunction in cord compression; or/and (3) interference of the peripheral nerves e.g. nerves of the cauda equina.

Plain Xrays will help to discover tumour arising in the bones of the spinal column or eroding from outside. There is evidence of destruction and collapse of the vertebral body and the vertebra may appear wedge-shaped, but the adjacent intervetebral discs are typically preserved. This helps to distinguish infection from tumour as the former causes early destruction of the discs. Myelography is indispensible. Bone scanning may detect early bone metastasis and Xrays of chest as well as the rest of the skeleton may detect either the primary malignant lesion e.g. lung carcinoma, or reveal disseminated metastases or multiple myeloma lesions.

Management: Decompression of the cord must be considered if the maliganant bony deposit causes much pain and physical disability. Life may be less unpleasnt although this will not alter the prognosis. Palliative radiotherapy should be considered to relieve those with disseminated spinal involvement.

9. SPINAL INFECTIONS

With the advent of modern chemotherapy, infection of the spine is now a rarity. However, pyogenic osteomyelitis of the spine and tuberculosis may occur in the very young, very old, or in those with systemic disease e.g. diabetes, SLE.

(a) **TB spine:** — usually found in children or adolescents and they present with malaise, low grade fever, insidious backache and weight loss. ESR is raised. Typical radiological findings are disc and vertebral destruction and formation of paravertebral abscesses.

(b) **Pyogenic osteomyelitis:** Acute spinal osteomyelitis may be due to haematogenous infection from pyogenic organism e.g. Staphylococci or salmonellae. Symptoms are acute with fever, rigor, chills, localised backpain, muscle spasm and Xrays may show a soft tissue mass in the paraspinal area. Later, the vertebral arch, bodies and discs may be destroyed. Treatment is to administer the appropriate antibiotics as soon as possible.

10. BACKACHE due to intra-thoracic or intra-abdominal causes

It must be stressed that for every patient complaining of backache, a **complete** physical examination is mandatory. Very often, the pain is referred from other organs of the body and in failing to carry out a general systemic examination, one may miss serious conditions like aneursym of the aorta (syphilitic or dissecting type) causing thoracic backpain; or pelvic abscess, carcinoma of the colon or prostate retroverted uterus, ovarian or uterine tumour etc — which can produce intolerable backache in the lumbar region.

Management of the referred backache is therefore to remove or treat the affected organ.

HOME STUDY

TREATMENT OF TUBERCULOSIS

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INTRODUCTION

Although great advances in the treatment of tuberculosis have been achieved since the early 1950s with the introduction of highly effective anti-tuberculosis drugs, tuberculosis remains one of the most infectious diseases and one of the great killers in our world.

Before 1950, there was no specific treatment for tuberculosis.[1] Patients were admitted to Tan Tock Seng Hospital for sanatorium treatment which consisted of bed rest, and taking a nourishing diet. Some patients were offered collapse therapy in the form of artificial pneumothorax and pneumoperitoneum. When all measures failed, patients were offered thoracoplasty.

Many new regimens of potent anti-tuberculosis chemotherapy have been introduced since the 1950s and a review of "Tuberculosis Chemotherapy — Developments in Singapore from 1957 — 1982"[2] was published recently.

Modern chemotherapy of tuberculosis is based on two bacteriological considerations.[3] First, all strains of M. tuberculosis contain some drug resistant mutants. Treatment should never be treated with a single drug because of the risk that acquired resistance will emerge. Secondly, there is a tendency for viable mycobacteria to persist in lesions due to their slow or intermittent growth. This problem was previously overcome by extending treatment for up to a total of 18 to 24 months. Recently, short course treatments of 6 months' duration have been developed.

TUBERCULOSIS STATISTICS IN SINGAPORE

In Singapore, we are fortunate that statistics have shown a steady decline in the annual notification and tuberculosis death rates.

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NOTIFICATIONS

In 1960, the new tuberculosis case notification rate was 307 per 100,000 population and this has fallen to 83 per 100,000 in 1983.[4] From 1960 to 1983, there has been a nearly 3-fold decline in the number of new notifications from 5057 cases in 1960 to 2065 cases in 1983. Two-thirds of the new adult respiratory tuberculosis cases were males. Two-thirds of the new cases occurred in patients above 40 years of age. In 1983, respiratory tuberculosis formed 83% of the new cases.

TUBERCULOSIS DEATH

224 deaths were attributed to tuberculosis in 1983. 94% of the deaths were patients aged 40 years and above. Tuberculosis death rate among males was 4 times that of females. The tuberculosis death rate was 9 per 100,000 population in 1983.

COMPONENTS OF THE BACILLARY POPULATION

It is postulated that there are three treatable population of tuberculosis organisms in the active human infection. The largest number are actively growing and are located extracellularly. A much smaller population of slowly or intermittently growing organisms resides within macrophages at an acid pH. A third population consists of slowly or intermittently growing organisms in solid caseous areas where pH is neutral. Rifampicin is the only drug that is bactericidal in all three of these populations. Isoniazid is bactericidal for both the actively growing organisms in cavities and for those within macrophages. Streptomycin and the other injectable polypeptides are bactericidal only for those extracellular organisms growing actively. Pyrazinamide is bactericidal only for intracellular organisms. All other drugs are bacteriostatic.

If the above hypothesis is correct, it explains

why Rifampicin, Isoniazid and Pyrazinamide have been found to be such important drugs in short course chemotherapy.

STANDARD CHEMOTHERAPY

SPH/PH Regimen

In the 1950s, a 3 drug combination of Injection Streptomycin, Isoniazid and PAS was given for 3 months followed by Isoniazid/PAS for up to a total of 18 to 24 months. Its drawback was its frequent gastro-intestinal toxicity such as nausea, vomiting and diarrhoea due to PAS. When hypersensitivity reaction occurred, the drugs responsible in order of frequency were PAS, Streptomycin and very rarely Isoniazid. As patients had to swallow 20 tablets (10 grams) of PAS, they had to divide the medication into 2 doses and they frequently took less than the prescribed dose or terminated their treatment prematurely.

STH/TH Regimen

Thiacetazone/Isoniazid was studied in Singapore in 1964.[5] This regimen was found to be less potent and more toxic than the PAS/Isoniazid combination. Thiacetazone is hence not recommended for routine use locally.

SEH/EH Regimen

A study was conducted from 1967 to 1968 to assess the efficacy of Ethambutol in the initial treatment of pulmonary tuberculosis.[6] The study compared 2 regimens, Ethambutol/Isoniazid and PAS/Isoniazid and found them to be equally effective. Ethambutol has now replaced PAS as the companion drug to Isoniazid as it is generally free of toxicity. The incidence of hypersensitivity reaction is less than PAS. Retrobulbar neuritis causing impairment of visual acuity occasionally occur. Vision usually improves if the drug is immediately withdraw. Ethambutol is predominantly excreted by the kidneys. It should be avoided in the treatment of patients with impaired renal function because it can accumulate and cause serious eye toxicity. All patients given Ethambutol should be told to report to the doctor immediately if they notice any visual deterioration.

For the initial 8 weeks, patients receive daily injections Streptomycin with oral Isoniazid and Ethambutol. After completion of 8 weeks' intensive phase, patients continue with oral Isoniazid and ethambutol. The total duration of treatment is:-

1) 18 months for patients with positive sputum and moderately advanced or far advanced disease
2) 12 months for patients with negative sputum and minimal disease

Dosages of Drugs

Isoniazid 300 mgm daily
Ethambutol 25 mgm/kg body weight for the first 8 weeks followed by 15 mgm/kg body weight
Injection Streptomycin ¾ gm for body weight less than 50 kg or more than 40 years of age
Injection Streptomycin 1 gm for body weight more than 50 kg

It is important that patients are told that they must continue to medicate themselves regularly even after they feel well.

Causes for treatment failure

Causes for treatment failure are[7]:-

1) Patients terminate treatment prematurely or take it irregularly
2) The infection is drug resistant initially (primary resistance)
3) The regimen prescribed is inadequate
4) Drug toxicity leads to interruptions or changes in treatment

Two ways have been developed of improving patient compliance. The first is intermittent chemotherapy. The second is short course chemotherapy. Both methods are fully supervised so that irregularity in drug taking is immediately evident and appropriate action to recall the patient can be taken. In intermittent treatment, the doses are given twice or three times a week while the duration of short course chemotherapy is shortened to 6 months and both these regimens make supervision easier.

Intermittent Supervised Treatment

Intermittent supervised regimens cause considerably less drug toxicity than daily regimens and have the additional advantage of being cheaper than daily regimens because the total quantity of drug used is smaller. Intermittent supervised regimen is especially suitable for unreliable patients such as vagrants and alcoholics.

In 1969, a study on bi-weekly supervised Streptomycin and Isoniazid preceded by an intensive dialy phase of Streptomycin, PAS and Isoniazid was found to be highly effective.[8].

SEH/S2H2 Regimen

We now recommend an initial phase of daily injection Streptomycin with oral Isoniazid 300 mgm/Ethambutol 25 mgm per kilogram body weight for 8 weeks. This is followed by supervised injection Streptomycin/Isoniazid twice weekly for a total duration as follows:-

(i) 12 months for patients with negative sputum and minimal disease.
(ii) 18 months for patients with positive sputum and moderately advanced or far advanced disease.

Bi-weekly dosages

Injection Streptomycin ¾ gm for body weight less than 50 kg or more than 40 years of age, or 1 gm for body weight more than 50 kg
Isoniazid 15 mgm/kg body weight
Pyridoxine 10 mgm

Oral intermittent Rifampicin and Isoniazid

In 1972, a study was jointly conducted by the Singapore Tuberculosis Research Committee with the British Medical Research Council to investigate high dosage Isoniazid (15 mgm/kg body weight) plus Rifampicin 600 mgm or 900 mgm twice a week or once a week preceded by 2 weeks of daily injection Streptomycin, Isoniazid and Rifampicin.[9]

Good therapeutic results were achieved, particularly the twice weekly regimens. Adverse reactions were mild. The commonest adverse effect was the 'flu' syndrome.

Short course chemotherapy

The main advantages of short course chemotherapy is that although given for only 6 months to 9 months, they are highly effective even for patients with extensive disease. Shortening the duration also improves patient compliance.

9 Month Regimen

In Britain and France, studies have shown that daily regimens of Rifampicin/Isoniazid for nine months with daily Ethambutol or daily injection Streptomycin for the first two months gave 100% cure rate.

These regimens are generally considered the present standard treatment of choice for technically advanced countries where drug cost is not a limiting factor. These regimens are not given under supervision. They give rise to very few adverse reactions and have a high success rate. The dosage of Rifampicin is 600 mgm if the patient's body weight exceeds 50 kg or 450 mgm if the body weight is less than 50 kg.

Patients should be warned that their urine is stained red as about 10% of Rifampicin is excreted in the urine.

6 Month Reigmen

1st Short Course Study

Following the success of 9 month regimens, the Singapore Tuberculosis Research Committee in conjunction with the British Medical Research Council Tuberculosis and Chest Disease Unit conducted studied on 2 regimens 2SHRZ/HR and 2SHRZ/HRZ given for either 4 months or 6 months in 1975.[10] All patients were given supervised daily injection Streptomycin, Isoniazid, Rifampicin and Pyrazinamide for 2 months followed by daily Isoniazid and Rifampicin or daily Isoniazid, Rifampicin and Pyrazinamide. Total duration of treatment was 4 months or 6 months.

The results showed that 4 months of treatment was ineffective but both 6 months regimens were highly successful and side effects were minimal.

Second Short Course Study

Following the success of the first short course study, a second short course study was undertaken from 1979 to 1981.[11] 3 regimens were studied. Patients were given supervised initial phase of injection Streptomycin, Isoniazid, Rifampicin and Pyrazinamide for 2 months or for 1 month or Isoniazid, Rifampicin and Pyrazinamide for 2 months. The continuation phase was intermittent Isoniazid and Rifampicin 3 X a week. The total duration of treatment for all 3 regimens was 6 months.

The results were again excellent and treatment failure was noted in only one patient among 319 patients with drug-sensitive tubercle bacilli pre-treatment. During 24 months of follow-up after chemotherapy there was only 1 bacteriologic relapse in each regimen, giving an overall therapeutic failure rate of 4 (1%). The frequency of adverse reactions was low. 3% of the patients had hepatitis with jaundice during chemotherapy.

Management of relapse and acquired drug resistance

Relapse occurs for one of two main reasons.

First, because the patient having taken drugs regularly defaults before the end of chemotherapy and so relapse occurs with organisms fully sensitive to the drugs of the primary regimen. Secondly, because the patient takes drugs irregularly for much of the time and he relapses with organisms which are usualy resistant to one of the drugs used in the primary regimen.

A careful history is taken which should include the drugs used, their dosage, duration and the compliance of the patient. At least 2 to 3 sputum specimens are sent for smears and culture for tubercle bacilli including sensitivity tests. A single drug should never be added to a previously failing or suspect regimen because this may lead to further resistance to this new drug.

The following principles should guide the re-treatment of the patient:-

1) At least 3 anti-tuberculosis drugs which have not previously been received and to which the organisms are likely to be sensitive should be used. This is particularly important if the remaining drugs are bacteriostatic drugs such as Ethambutol, Ethionamide, Cycloserine, PAS and the Aminoglycosides other than Streptomycin. If the patient had received injection Streptomycin, Isoniazid and PAS, he may be treated with Rifampicin, Pyrazinamide, Ethambutol daily preceded by injection Kanamycin daily for the first 2 to 3 months. However, if his organisms are likely to be resistant to injection Streptomycin, Isoniazid, Ethambutol, Rifampicin and PAS, he may still be successfully treated with daily Ethionamide, Cycloserine and Pyrazinamide preceded by daily injection Kanamycin for the first 2 to 3 months. Treatment should be continued for a total duration of 18 to 24 months.

2) All drugs are given in a single dose except for Cycloserine and PAS which may be divided into 2 doses.

3) Drugs should be given fully supervised if patients are unco-operative. Patients are best hospitalised initially as the drugs given are often toxic or unpleasant and great encouragement are needed to maintain the patient on treatment (see table[1] regarding dosage and side effects).[3]

The treatment of patients in renal failure

Fortunately, drugs such as Rifampicin, Isoniazid, Pyrazinamide and Ethionamide which are eliminated primarily by routes other than renal, may be given in the normal dosage, whatever the degree of renal failure.

The aminoglycosides are excreted exclusively, and Ethambutol predominantly by the kidneys and hence these drugs should best be avoided in patients with renal failure. Another drug, Cycloserine, should also be avoided in renal failure. If injection Streptomycin has to be used, 0.75 gm Streptomycin may be given at intervals such that the trough serum concentrations do not exceed 4 ug per ml. Likewise, the dosage of Ethambutol must be reduced according to the creatinine clearance e.g. Ethambutol 25 mgm/kg 3 times a week to patients with a creatinine clearance of 50 to 100 ml per minute and twice a week to patients with a creatinine clearance of between 30 and 50 ml per minute.

The treatment of pregnant women

None of the anti-tuberculosis drugs have been proven to have teratogenic effects in the human foetus[7] although Rifampicin has such effects when given in high dosages to rats and mice. Ethionamide has also been mentioned to cause teratogenicity. At present some authorities suggest withdrawing the use of Ethionamide and Streptomycin during pregnancy. The latter can cause toxic damage to the eight nerve of the foetus. Some physicians withhold giving Rifampicin to patients who are likely to get pregnant or if the patient is less than 12 weeks' pregnant. The drugs of choice during pregnancy are Isoniazid, Ethambutol and if the patient is more than 12 weeks' pregnant, Rifampicin.

Treatment of patients with hepatic disease

Mild hepatic dysfunction, as seen in alcoholism, does not necessarily influence the choice of drugs.

Patients with hepatic failure associated with encephalopathy or hepatocellular damage with a persistent SGOT elevation of greater than 6 to 8 times baseline should be treated with drugs that are excreted by the kidney rather than metabolized in the liver. Examples of potential-

ly hepatotoxic drugs include Rifampicin, Isoniazid, Ethionamide and Pyrazinamide. Injection Streptomycin and Ethambutol are safe, but a third drug may be required. Isoniazid may be tried cautiously but should be removed if liver function deteriorates.

Patients who require total parenteral therapy

Patients who require total parenteral therapy can be treated with injection Streptomycin, Isoniazid, Rifampicin and other injectable polypeptides such as Kanamycin or Capreomycin.

Use of Pyridoxine

Pyridoxine is recommended for those patients taking Isoniazid who have evidence of nutritional deficiencies. Alcoholics, the aged, pregnant women and those prone to peripheral neuropathies such as patients with uraemia and diabetes are given Pyridoxine. Patients who receive intermittent treatment with high dose Isoniazid 15 mgm/kg body weight, in combination with Streptomycin or Rifampicin should receive Pyridoxine 10 mgm supplement.

General management of patients during chemotherapy

Hospital treatment

With the use of effective chemotherapy, treatment of tuberculosis is predominantly undertaken as an outpatient procedure. Initial treatment in hospital is reserved for a few patients such as:-

(a) Seriously ill patients (b) Patients with special problems such as alcoholics,psychiatrically disturbed patients, those with drug-resistant disease or drug allergies. Segregation of infectious patients convey little extra protection to home contacts as chemotherapy renders such patients rapidly non-infectious.

Management of chemotherapy

Although the chemotherapy mentioned in this article refer to adult patients with pulmonary tuberculosis, available evidence indicates that they should be generally applicable to persons with extrapulmonary tuberculosis.

Prior to chemotherapy, 2 sputum specimens are sent for smears and culture/sensitivity and a chest x-ray is carried out. Laryngeal swabs may be done if the patient cannot produce sputum. At the time chemotherapy is commenced, the patient is notified. This enables his home contacts to be screened by the Department of Tuberculosis Control. Chest x-rays are repeated at 2 months, 6 months, and at the end of chemotherapy which may be at 9 months, 12 months or 18 months depending on the type of regimen chosen and the extent of disease. Sputum smear and laryngeal swab are also repeated at these times if the last result remains positive.

After completion of chemotherapy, the patient is followed up 1 year later with a chest x-ray and if all goes well, he is discharged. In Singapore, a retrospective study of patients treated from Janaury to December 1966 was done to assess the percentage of relapses during a 5 year follow-up.[12] The study showed that the relapse rate was less than 1% per year for patients who had received 18 to 24 months of regular treatment but was 3 times higher for patients with irregular treatment.

Conclusion

In conclusion, several highly efficacious regimens of tuberculosis chemotherapy have been described. It is now possible to shorten the duration of treatment from 18 or 24 months to 6 months.

In spite of the availability of effective anti-tuberculosis drugs, treatment failure remains a problem because some patients take drugs irregularly or stop treatment prematurely. This problem is overcome by the introduction of fully supervised treatment using either "intermittent chemotherapy" or "short course chemotherapy".

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MULTIPLE CHOICE QUESTIONS

ANSWER Correct or Incorrect the following questions:-

1. The incidence of backache is —
   a) increasing because of our younger employed population,
   b) related to industrial injuries,
   c) difficult to estimate because milder cases are not usually included,
   d) a major socio-economic problem in Britain
   e) due to our upright posture.

2. History taking in a patient with backache is important because:-
   a) the majority have a positive family history of the disease,
   b) diagnostic clues may be obtained from age, sex and occupation,
   c) presence of constitutional symptoms suggests systemic involvement,
   d) psychogenic back-pain is often diagnosed by careful history alone,
   e) pain localisation is indicative of the exact site of lesion.

3. In the examination of a patient with backache, the following statements are true:-
   a) Congenital and structural abnormalities can be detected by clinical observation of the spinal column,
   b) Sciatic pain may be reproduced by percussing the affected spinal vertebrae.
   c) Ausculation of the lungs, heart, great vessels and peripheral blood vessels should be part of the general medical examination,
   d) Straight-leg raising test (SLR) is positive only when Sciatic root irritation is present not by any other condition.
   e) Myofasical 'trigger points' present are consistent with localised myositis.

4. In patients with chronic backache, certain investigations are useful —
   a) ESR, if raised, is indicative of a severe prolapsed intervertebral disc,
   b) High serum alkaline phosphatase points to extensive bony infiltration if other liver functions are normal,
   c) HLA B 27 determination should be done in every case of backache in the young,
   d) Osteoarthritic changes e.g. osteophytes in the spines, are not always the cause of spinal diseases in the older patients,
   e) Myelogram should only be done if there is evidence of nerve root or spinal cord compression.

5. Sciatica is a common presentation in patients with low backache, which statement is correct:-
   a) Sciatica due to prolapsed intervertebral disc is aggravated by intra-thoracic and intra-abdominal pressure,
   b) Sciatica due to intraspinal tumours is not severe and not aggravated by hyperextension of the spine,
   c) Sciatica is often associated with neurological signs in the legs if lumbar nerve roots are compressed,
   d) Bilateral sciatica usually suggests spondylolithesis,
   e) Posterior herniation of the lumbar discs is often the cause of severe sciatica.

6. Treatment of chronic lumbar disc lesions should include the following:-
   a) Complete bed-rest for 4 weeks until all pain has subsided,
   b) Intermittent lumbar traction for persistent pain,
   c) Spinal exercises and mobilisation by manipulation until the bladder and bowel dysfunctions are restored,
   d) Instruction of correct posture and back discipline and a change in work that do not involve bending and lifting of heavy weight,
   e) Laminectomy if disc lesions are associated with gross congenital abnormalities,

7. INTERMITTENT claudication differs from symptoms due to spinal stenosis as the former has:-
   a) Diminished peripheral pulses in both legs,
   b) There is no cramp,
   c) Lumbar extension aggravates back-pain, spinal flexion eases the pain,
   d) Weakness and paraesthesia are felt in the back and legs,
   e) Uncommon to have bowel and bladder disturbances.

8. In patients with Myofascial back pain, the following statement is true:-
   a) No cause is found in the majority of patients,
   b) Pain is localised along the paraspinal areas,
   c) Pain is worsen by heating, walking and bed-rest,
   d) A history of major injury is always present,
   e) Treatment of choice is oral steroids and phenylbutazone.

9. The following statement is true:-
   a) Psychogenic backache is a diagnosis by exclsion,
   b) Erosion and fusion of sacroiliac joints are confined only to Ankylosing spondylitis,
   c) HLA B 27 antigen is commonly found in patients with ankylosing spondylitis but is also present in a small percentage of patients with other inflammatory spondylitis,
   d) Osteoporosis is commonly associated with limb (pathological) fractures and periodontal disease,
   e) Pseudofractures (Looser zones or Milkman's line) are radiological evidence of osteomalacia.

10. Spinal tumours are:-
   a) Usually malignant metastases from other organs,
   b) Able to produce rapid local destruction of the skeleton,
   c) Unable to produce 'girdle' pain in the chest and cord compression,
   d) Differentiated from spinal infections as the adjacent discs of the affected vertebrae ar typically preserved.
   e) Often detected early by bone scans.

11. Spinal infections:-
   a) Occur in the extremities of life or immunosuppressed subjects,
   b) TB spine usuaslly present with insidious backache, fever, weight loss and kyphosis,
   c) Paravertebral cold abscess is found in TB spine,
   d) Pyogenic osteomyelitis of the spine often follows back injuries,
   e) Common pyogenic organisms found are E Coli and Streptococci.

12. Which statement is correct:-
   a) A complete examination is essential in all cases of backache,
   b) Myelogram is indicated in all cases with root pain or cord compression,
   c) Urgent surgery is required in those with cauda equina syndrome,
   d) Majority of prolapsed lumbar disc can be successfully treated by conservative measures,
   e) Bone biopsy is the only definitive diagnosis for osteomalacia.

Answers

1. c, d, e 2. b, c, d 3. b, c 4. b, d, e 5. a, b, c, d 6. b, d, e 7. a, e

8. a 9. a, c, d, e 10. a, b, d, e 11. a, b, c 12. a, b, c, d, e

MULTIPLE CHOICE QUESTIONS

Q 1. Jaundice on the first day of life is nearly always due to Physiological jaundice of the newborn.

True False

Q 2. A term baby is assessed to have a serum bilirubin of 10-12 mg/dl on day 3. The baby is otherwise well. You would:

(a) Refer the baby to hospital for phototherapy.
(b) Advise exposure of the baby to direct sunlight.
(c) Give a course of antibiotics to the baby for presumed sepsis.
(d) Do none of the above.

Q 3. The commonest cause of flatulence in a baby is

(a) Too small a hole in the teat.
(b) Poor feeding technique.
(c) Prolonged feeding time (30 minutes).
(d) Not burping the baby.

Q 4. Piptal is good for the "3 month Colic".

Q 5. The most common pathological cause of recurrent vomiting in babies is

(a) Pyloric stenosis
(b) Sepsis
(c) Narcotic withdrawal
(d) Gastro-oesophageal reflux

Q 6. An infant has diarrhoea without dehydration. You would advise:

(a) Referral to hospital
(b) Breastfeeding the baby
(c) Oral glucose-electrolyte solution followed by graduated milk feeds
(d) Rice-water

Answer:

Q 1. *False. It is almost certainly a haemolytic jaundice.*

Q 2. *(d) Do none of the above. This is most probably physiological jaundice of the newborn. Mother should be advised to expose baby in a bright draught-free area.*

Q 3. *(a) Test this by inverting the bottle when the milk should drop out at the rate of several drops per second.*

Q 4. *False. Studies have shown beyond doubt that anti-spasmodics are no better than placebo in reducing crying episodes.*

Q 5. *(d) Treatment is by propping up and thickening feeds.*

Q 6. *(c)*

MULTIPLE CHOICE QUESTIONS

ANSWER Correct or Incorrect the following questions:-

1. The new tuberculosis notification rate in Singapore per 100,000 population in 1983 was:
   A 83 B 307 C 505 D 810 E 1000

2. The tuberculosis death rate per 100,000 population in Singapore in 1983 was:
   A 30 B 75 C 9 D 100 E 233

3. Which of the following drugs in bacteriostatic against tubercle bacilli?
   A Streptomycin B Isoniazid C Rifampicin D Pyrazinamide E Cycloserine

4. Which of the following statements is true of tuberculosis today in Singapore?
   A Thiacetazone is well tolerated by Singapore patients.
   B The greatest incidence is in the 10 to 20 age group.
   C Most patients require hospitalisation.
   D Patients require long term follow-up after completion of chemotherapy.
   E A single drug should never be used for treating patients with active pulmonary tuberculosis.

5. Which of the following does not contribute to treatment failure:
   A Patients terminate their treatment prematurely or take it irregularly.
   B Patients are given fully supervised treatment.
   C The infection is drug resistant initially.
   D The regimen prescribed is inadequate.
   E Drug toxicity leads to interruptions or changes in treatment.

6. Two of the following drugs should be avoided in patients with renal failure:
   A Rifampicin and Pyrazinamide
   B Isoniazid and Pyrazinamide
   C Isoniazid and PAS
   D Ethionamide and Pyrazinamide
   E Ethambutol and Streptomycin

7. Two of the following drugs should be avoided in patients with hepatitis:
   A Rifampicin and Pyrazinamide
   B Streptomycin and Ethambutol
   C Cycloserine and Kanamycin
   D Streptomycin and Ethambutol
   E Ethambutol and Cycloserine

8. The shortest time that a chemotherapeutic regimen is capable of curing almost all sputum positive tuberculosis patients is:
   A 18 months B 12 months C 9 months D 6 months E 4 months

9. Which of the following drugs produce a red colour in the urine?
   A Isoniazid B PAS C Streptomycin D Ethionamide E Rifampicin

10. The treatment of choice today in technically advanced countries where cost is not a limiting factor is:

	Initial Intensive Phase	Continuation Phase
A	Streptomycin, PAS Isoniazid	PAS/Isoniazid
B	Streptomycin, Ethambutol, Isoniazid	Ethambutol/Isoniazid
C	Streptomycin, Ethambutol, Isoniazid	Bi-weekly Streptomycin, Isoniazid
D	Isoniazid/Rifampicin plus Ethambutol or Stretptomycin	Isoniazid/Rifampicin
E	Streptomycin, Isoniazid, Thiacetazone	Isoniazid/Thiacetazone

Answers to Questions

1. A 2. C 3. E 4. E 5. B 6. E 7. A 8. D 9. E 10. D

REPORT

THE TENTH CONVOCATION DINNER & SEVENTH SREENIVASAN ORATION

The price of the dinner at $45 per head was almost prohibitive and the Hunan food served during the dinner sadly also did not live up to expectations. Despite this there was a full house at the Tenth Convocation and dinner of the College held at the Hotel Meridien on Sunday, 11th November 1984.

All this goes to say that something more than food alone draws the crowds to the annual dinner of the College, a fact that augurs well for the future of our College.

The evening began with an address by the President of the College Dr Wong Heck Sing. Dr Wong set the tempo for the proceedings of the Convocation. His address (elsewhere in this issue) provoked a lot of serious thinking amongst those who listened to him. It even evoked some comments in the forum page of our morning newspaper. Dr Wong deserves to be listened to and heeded. No one can say that there is no sense of direction at the top of the College council.

The Albert Lim Award this year went to an old stalwart of the College, Dr Frederick Samuel. This is a fitting tribute to one who has given much time in the past to the affairs of the College, we hope he will continue his invaluable service.

Our congratulations also go to the five new diplomate members of the College for their richly deserved success.

One of the most appreciated and innovative moves by the College was the presentation of certificates of attendance to those doctors who have conscientiously and faithfully attended the refresher courses conducted by the College in the past few years. Amongst the senior generation of GPs who well deserved recognition were Dr Foo Chee Guan and Dr Lee Siew Choh, the latter despite his political commitments.

Miss Deidre Murugasu, daughter of one of our eminent surgeons, took the top prize for medical students. Hopefully she would see more in the medical profession than the acquiring of skill in the cobbler's art! The 2nd place was taken by Miss Choong May Ling, and Mr Tan Tong Khee saved the day for the male medical students by taking the 3rd place.

Dr Victor Fernandez then introduced the main speaker of the evening Dr Edward J Kowaleswski, Professor of the Department of Family Medicine of the University of Maryland School of Medicine, who had come all the way from the United States to deliver the Seventh Sreenivasan oration. Sometimes in the event of things an eminent personality does equal honours to the august body that has conferred honours on him. Such a person is Dr Lowalewski, or Ed as he is known to us all.

Ed proved himself to be the teacher par excellence that he is in that nobody nodded during his talk. A few may indeed have nodded but this was in agreement and not out of boredom.

The College should be congratulated for bringing out teachers in general practice like Ed to infuse new thoughts and challenge in our country. Ed stayed on to teach our teachers in general practice. This must surely be one of the very rare occasions in this country where teachers of medicine are taught firstly how to teach before they go on to unload their knowledge on hapless students.

Dr Kowalewski's oration is reproduced elsewhere in this issue and subject to editorial comment. He has come to teach and we have gone to listen and learn. Some good must come out of all this, and we sincerely hope he will be but one of the many more giants in general practice and family medicine who will be invited to address the College in the future.

EK

BOOK REVIEW

FAMILY PRACTICE Volume 1, Number 1, March 1984 Published by Oxford University Press

This Journal is the first of its kind — an international journal on family medicine which is wholly independent of any national body. With the formation of WONCA (World Organisation of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians) there have been a significant increase in the establishment of national colleges and academies of general practitioners/family physicians. Most of these bodies published their own journals which carry news and articles written by their members and read by their members. "Family Practice" was published with the hope that it will provide a forum for the exchange of information about clinical practice, the organisation of services, and education and training in the field of Family Medicine or General Practice or Primary Medical Care on an international basis.

The Editor is the eminent Prof Howie of the Department of General Practice, University of Edinburgh. There are 14 doctors from 11 countries on the editorial board making it a most international mix. I am glad to note the presence of 2 Asians among them, namely Dr T M Ho of Malaysia and Dr Denis Aloysius of Sri Lanka.

The objective of the Journal was not only to be international but also interdisciplinary, to attract readers and contributors from many fields — nursing and medicine, social work and sociology, education and epidemiology, biomedical and behavioural. It will be interesting to see if the objective could be achieved fully in the issues to come.

In this first edition there are 9 papers and originals and one review article. The papers are well worth reading although 3 of them are by the same authors on "Written Simulation of Patient-Doctor Encounters"

One article is titled "Do interpreters affect consultations?" by Dr William Dodd, Department of Primary Care, Saudi Arabia. This could form a research paper by our College in our multiracial multi-linguistic/dialect society.

I am most impressed by the review article on Diabetes Mellitus by Dr Jack Froom, Department of Family Medicine, State University of New York. It is the most comprehensive and authoritative article on Diabetes and will most certainly update the knowledge of any doctor reading it. For those who would like to delve deeper, this article carries a total of 158 references! I look forward to further articles of the same nature in the coming issues.

A good portion of the Journal is devoted to WONCA and I think this is a positive move to publicise the ideals and work of WONCA.

In the practice of family medicine, 3 levels of development could be defined. In the first level it would be more curative medicine with public health and social medicine playing an important part in the care of the patients. Morbidity and mortality would be mainly from malnutrition and infectious diseases. The third level of family medicine would be in the realm of computerisation and research and the morbidity of the population would be mainly pertaining to geriatrics and degenerative diseases. Our Singapore experience would be in the second level, just out of level one and trying to attain level 3. The level of family medicine practised in England is definitely different from that practised in Indonesia or India, but even in a country like USA we would find different doctors practising medicine at different levels. It is through WONCA that we know of and hope to learn and benefit from the work and experience of each other.

"Family Practice" must be welcome wholeheartedly by all doctors in Family Practice.

K L Lim

BOOK REVIEW

SOCIAL CLASS AND HEALTH STATUS INEQUALITY OR DIFFERENCE

Occasional Paper 25
Royal College of General Practitioners

The 4th McConaghey Memorial Lecture was delivered on 7th May 1983 by Dr DL Crombie who is a general practitioner and also Director of the Birmingham Research Unit, RCGP.

In his lecture he used data from the 2nd National Morbidity Survey (RCGP et al, 1982) and correlated these with the 1970/1971 Census Data for the same patients. His purpose was to show that there were differences but no inequalities between social classes and their health status. In the United Kingdom, social class was classified according to occupational status. Those in professional occupations like doctors and lawyers are placed in Class 1 and those in unskilled occupations like labourers are assigned to Class 5.

In the 1981 report by Sir Douglas Black's Committee, it was mentioned that the economic inequalities seen in Class 5 people were "the basis for a self-perpetuating cycle of social, educational, occupational, nutritional, housing and further economic deprivation leading to poorer health in same ad succeeding generations". While agreeing with this finding, Dr Crombie also inferred from his own data that social classes also differ in their "relative capacity to cope or deal with life's problems in general." This can also affect the utilisation of health services and indirectly the health status of each social class.

He was able to show that "notwithstanding the persistent relative disparity between the health status of social class 5 compared with social class 1", his findings did confirm the following:-

(1) the absolute health status of all groups has improved and continues to improve.

(2) the population has a persistent trend to move up from Social Class 5 to Social Class 1.

(3) disparities between the health status of social class 1 and 5 are not as great as the equivalent disparities between males and females.

(4) both the disparities in 3, above, are persisting in the face of relatively high reductions in death rates over the last 100 years.

(5) the absolute difference in death rates between males and females has persisted unchanged over the past 100 years, while the relative difference has expanded enormously as overall death rates have improved.

(6) the absolute differences in death rates between social classes have diminished over the past 50 years, while the relative differences between rapidly diminishing death rates have been maintained.

(7) general practitioners compensate for any under-use or mis-use of health services by social class 5.

Dr Crombie also found that "inequalities in health service consumption is determined minimally by the patient's physical environment and to some extent by true differences in health status between patients in different social classes, both these factors are dwarfed in comparison to the variability that exists in the provision of health care by different doctors" either in solo or in group practice. In fact he noted that "social Classes 4 and 5 far from having a poorer service from primary care, have a better service than Social Class 1 if quality is measured by the numbers of consultations and other services used".

Much of the contents of the article are devoted to discussing or refuting conclusions drawn in the Black Committee's report. Unless the reader has previously read this report, he cannot fully appreciate Dr Crombie's appraisal "in a manner commensurate with the importance of its proposals and the quality of its arguments and data." This 4th McConaghey Memorial Lecture is an outstanding piece of intellectual dissection rendered with skill and precision.

Paul SM Chan

NEWS FROM THE COUNCIL

1) **11th COLLEGE EXAMINATION**
The 11th College Examination leading to the Diplomate Membership was held on:
Sunday, 28th October 1984 — Theory
Sunday, 4th November 1984 — Clinicals
Of the nine candidates who sat for the examination the following five were successful:
Dr Ajith Damodaran
Dr Michael Lee
Dr Omar bin Saleh Talib
Dr Tan Kok Yong
Dr Wong Sin Hee

2) **The Seventh Sreenivasan Oration and Tenth College Convocation & Dinner**
The Seventh Sreenivasan Oration and Tenth College Convocation and Dinner were held at the Hotel Meridien Singapore, on Sunday, 11th November 1984.

The Sreenivasan Oration was delivered by Dr Edward J Kowalewski, Professor and Chairman, Department of Family Medicine, University of Maryland School of Medicine, Baltimore, USA. The title of the oration was "The Continuing and Increasing Fundamental Role of the Family Physician in Any Health Care System." The oration was well received by the large number of members and guests present.

At the Convocation

a) The five successful candidates were awarded their Diplomate Membership Diplomas by the President of the College, Dr Wong Heck Sing.

b) **The Albert Lim Award** was presented to Dr Frederick Samuel.

c) **Certificate of Appreciation** was awarded to Professor Phoon Wai On.

d) **Certificates of Attendance** were awarded to the following for having satisfied the requirements of continuing medical education in Family Medicine/General Practice as prescribed by the College of General Practitioners Singapore for the period 1981-84:

Dr Chua Been Koon
Dr Foo Chee Guan
Dr Hia Kwee Yang
Dr Hoption Ted Wong
Dr Hu Tsu Teh
Dr Lee Siew Choh
Dr Leong Kwong Lim
Dr Low Yee Shih
Dr Mohamed Nawaz Janjua
Dr Samuel, Frederick
Dr Sarma, Lily S
Dr Yang Chien Pai

e) **Book Prizes** to the three Top Medical Students at the General Practice Examination were presented to
Miss Deirdre Murugasu — 1st prize
Miss Choong May Ling — 2nd prize
Mr Tan Tong Khee — 3rd prize

The College Dinner was held at the Margaux Ballroom and was attended by 350 members and guests.

3) **New Members**
The following have been accepted by Council into membership of the College during September/November 1984:

Dr P Balasubramaniam	Associate Membership
Dr Goh Cheng Hong	Associate Membership
Dr Koh Mui Noi, Betty	Associate Membership
Dr Lau Kit Wan	Associate Membership
Dr Mao Fong Hao	Associate Membership
Dr K Paramesuaran	Associate Membership
Dr Sim Tong Aik, Tony	Associate Membership
Dr Wong Wee Nam	Associate Membership
Dr Tan Wah San	Ordinary Membership
Dr Teo Tiong Kiat	Ordinary Membership
Dr Wong Kai Peng	Ordinary Membership

4) **Teacher training course**

Dr Edward J Kowalewski conducted a one week teaching course for teachers in general practice while he was here. This course was well attended with 11 doctors attending the morning sessions and 29 doctors the evening sessions.

Those who attended the course found it useful and relevant to their teaching experiences. Dr Kowalewski shared his experience with those present and showed how audio-visual could be used to advantage.

This course could have been of immense benefit to teachers in the other medical disciplines also because teaching is not a natural inborn talent of everybody and is something which has to be cultivated, exercised and taught.

5) **New Premises for College**

In his speech at the Tenth Convocation Dinner, the President of the College, Dr Wong Heck Sing said that the Ministry of Health has offered new premises to the College at the old Faculty of Medicine building when the latter moves out to Kent Ridge.

Talks are in progress with the Ministry and we are hopeful in acquiring new premises for the College.

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Important notice

The World Health Organization (WHO)* has recommended that pregnant women and new mothers be informed of the benefits and superiority of breastfeeding. Mothers should be given guidance on the preparation for, and maintenance of, lactation, the importance of good maternal nutrition and the difficulty of reversing a decision not to initiate, or to discontinue, breastfeeding. Before using an infant formula, mothers should be advised of the social and financial implications of that decision and the importance for the health of the infant of using the formula correctly. Unnecessary introduction of supplements including partial bottle feeding, should be avoided because of the potentially negative effect on breastfeeding.*

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

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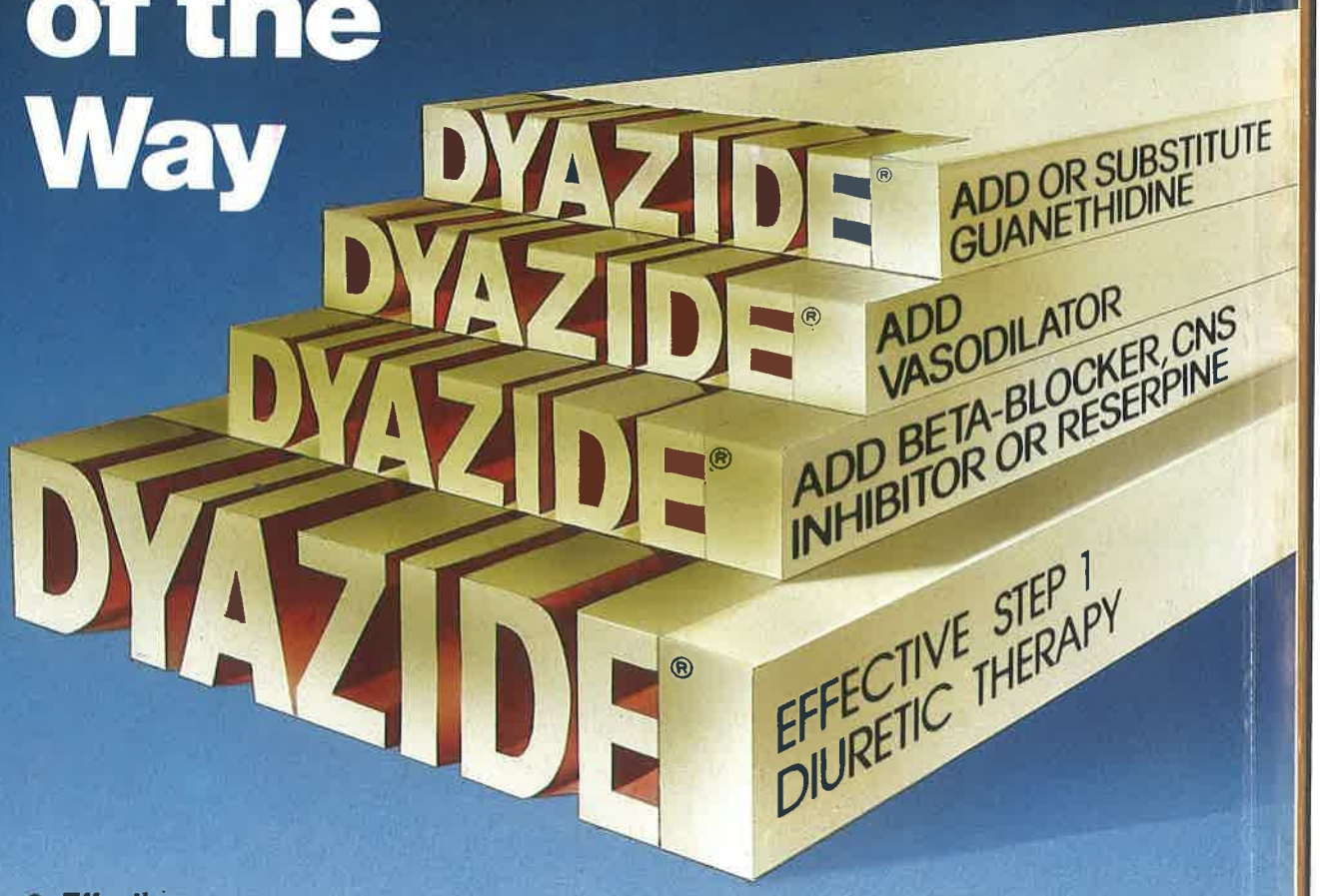

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