

The aim of cytokine inhibition therapy in rheumatoid arthritis is to minimise the tissue damaging effects of the inflammatory response on the articular cartilage and periarticular structures. Opportunities to inhibit cytokines include; blocking cytokine production; inhibiting cytokine-receptor interaction either by blocking the receptor itself, inhibiting receptor synthesis or by removing the receptor completely: inhibiting the intracellular phosphorylation pathways that lead to changes in regulation of the target gene.

Blocking of cytokines or their receptors may be achieved by humanised mouse monoclonal antibodies which have been synthesised to IL-1 and IL-1 receptors, IL-8 and IL-8 receptors and TNF and TNF receptors. Natural inhibitory molecules exist; a natural IL-1 receptor antagonist binds to IL-1 receptors but fails to transduce any signal and therefore acts as a competitive receptor inhibitor; soluble cytokine receptors (e.g for IL-1 and TNF) may be shed from the surface of cells, bind soluble cytokines and prevent interaction with cellular receptors. On the basis of this, recombinant forms of the IL-1 receptor antagonist are being used in therapy. In addition, a challenge for genetic engineering would be to either create receptors or use natural receptors for pro-inflammatory cytokines that have the property of binding to their natural cytokine but prevent interaction with target cells. A possible further avenue for intervention is inhibition of the IL-1 converting enzyme (ICE) which cleaves IL-1 to its active form.

Inhibition of pro-inflammatory cytokines in rheumatoid arthritis can induce a clinical remission. A recent trial of 20 patients injected with monoclonal antibodies to TNF $\alpha$  and followed up for 8 weeks demonstrated a remission with an impressive fall in mean joint score and a sustained reduction in acute phase response proteins. Subsequent placebo-controlled trials support this finding. This treatment is therefore effective and appears safe in the short-term but there are theoretical problems of antigenicity in the long-term by regularly injecting partly foreign proteins in the form of humanised mouse monoclonal antibodies.

In the future it may be possible to select appropriate patients for responses to particular types of therapy on the basis of clinical criteria, biochemical and genetic markers.

#### *Toxicity of anti-rheumatic drugs*

Long term outcomes in patients with rheumatic diseases has been monitored for 20 years by ARAMIS (Arthritis, Rheumatism and Aging, Medical Information System). Outcomes are defined in terms of death, disability, discomfort, drug toxicity and dollar cost. The incidence of NSAID-induced gastropathy, the frequency with which it causes hospital admission or death and the risk factors which influence the likelihood of adverse events have been measured. The rate of admission for gastrointestinal disorders associated with NSAIDs in the USA is approximately 1.3%/year. Aspirin is relatively non-toxic. There are 3-4 fold differences in toxicity between NSAIDs with the highest incidence of adverse reactions (indomethacin, tolmetin and ketoprofen) and the lowest (ibuprofen and aspirin) with piroxicam and fenoprofen intermediate. When the toxicity of different DMARDs and NSAIDs are compared, interestingly, the latter are more toxic than expected and DMARDs which have the potential to improve long term outcome are less so.

For analgesia low doses of NSAIDs are as effective as high doses and simple analgesics are as effective as NSAIDs.

## MEDICAL EDUCATION IN HONG KONG\*

*D. Todd†, Department of Medicine, Queen Mary Hospital, Hong Kong*

In John Richmond's tribute to Sir Stanley Davidson, he said 'when the history of 20th century British medicine comes to be written, Stanley Davidson will figure as one of the truly great professors of medicine'.<sup>1</sup> None would disagree. Sir Stanley was external examiner in medicine at the University of Hong Kong in 1959. Then as a young lecturer I was awestruck, for he was most impressive, both as a physician and as a man. His textbook of medicine remains a standard text at the University of Hong Kong. It is a great honour to have been invited to deliver the Sir Stanley Davidson Lecture, particularly this year, which is the 100th from his birth. I thank you, Mr President and Members of your Council for this privilege.

During the inauguration of the Hong Kong Academy of Medicine in December 1993, the Hong Kong College of Physicians organized a symposium on 'Medical Training: Internists' Perspective'. The first lecture, 'A History of Medical Education in Hong Kong', was given by Professor Gerald H. Choa, Vice-President of the College. This fascinating lecture, now published,<sup>2</sup> gives a comprehensive account, beginning with the arrival of Protestant missionaries in China in the early 19th century, and ending in 1974, the year when Professor A. J. C. McFadzean retired. McFadzean was the first post-Pacific war professor of medicine in Hong Kong and profoundly influenced medical education here.

Medical education in Hong Kong can be divided into four periods:

1887-1915	Years of the Hong Kong College of Medicine for the Chinese
1915-1941	Pre-war years of the Faculty of Medicine, University of Hong Kong
1942-1945	War years
1946-Present	Post-war years

Here, the pre-war and war years are considered the past and from 1946 to now the present.

#### THE PAST

Hong Kong was ceded to the British in 1842. Medical education can be said to have had its beginnings in 1843 when Dr Benjamin Hobson, a graduate of University College Hospital, London working with the London Missionary Society, took on students from a neighbouring school as pupil-assistants in the Medical Missionary Hospital of Hong Kong. However, formal medical education was only established in 1887, after forty-four years of British rule, with the opening of the Hong Kong College of Medicine for the Chinese. The intention was to educate doctors not only for Hong Kong, but for China and East Asia as

\*A Stanley Davidson lecture delivered at the Joint Meeting with the Hong Kong College of Physicians and the Hong Kong College of Paediatricians held in Hong Kong on 22-23 October 1994.

†President, Hong Kong Academy of Medicine.

well. Its founders were Dr Patrick Manson, the first dean, Dr James Cantlie and Dr Ho Kai. All three were graduates of Aberdeen University where, many years later, Sir Stanley held the Regius Chair of Medicine before he moved to Edinburgh. Initially the College had no endowment and no classrooms. Most teachers were private practitioners who offered their services voluntarily, and teaching took place in private clinics and various government and private hospitals. But the curriculum was impressive with lectures in chemistry, botany, anatomy, physiology, pathology, hygiene, materia medica, surgery, ophthalmic surgery, dental surgery, medical jurisprudence and midwifery. Dr Manson left Hong Kong two years after the founding of the College and the deanship was taken over by Dr James Cantlie. Both were later knighted.

Dr Ho Kai was the first Hong Kong born Chinese to qualify in medicine and he was also called to the bar at Lincoln's Inn. However, after returning to Hong Kong in 1882 he discovered that most local Chinese would receive Western medicine only if it was free so he turned to law for a living. He prospered and donated the cost of building the first teaching hospital, the Alice Memorial Hospital, named after his wife, Alice Walkden. This was opened in 1887. He continued to teach medical jurisprudence at the College till 1906 and, in 1912, was knighted for his public services.

An anecdote was related by Dr James Cantlie: 'In one professional examination for the Diploma of the College the questions were answered perfectly, but on comparing the papers it was found that the answers were identical. The examiners, new to Chinese methods of instruction, insisted upon another paper being set as they believed that the students had copied from each other. A fresh paper was set and a careful watch kept; again the answers were correct and identical in every point, and it was only when the textbook recommended to the class was referred to that the explanation was forthcoming. They knew the large textbook of some five hundred pages by heart and could answer any question put to them, word for word, from the book'.

In 1892 two doctors graduated, Sun Yat-sen, the founder of the Republic of China, and Kong Ying-wa. They were awarded Licentiates in Medicine and Surgery of the College of Medicine for the Chinese, Hong Kong. But the record of the College was not an impressive one since out of an enrolment of 128 students in the 23 years of its existence, only 41 graduated. The Licentiate was not recognized by the UK General Medical Council until 1909. One obstacle had been apparently the lack of Latin in the curriculum!

After the establishment of the University of Hong Kong in 1911, the College became the Faculty of Medicine. Teaching was transferred to the Government civil hospital and the Tung Wah hospital, a Chinese community hospital. In 1922, the Rockefeller Foundation endowed chairs in medicine, surgery and obstetrics and gynaecology. The present teaching hospital, the Queen Mary hospital, was opened in 1937. Most of the University of Hong Kong's records were lost during the Pacific War but it is known that from 1914 to 1941, 330 medical degrees (MB, BS) were conferred. Many graduates became prominent medical practitioners, teachers or medical administrators, locally as well as in S.E. Asia, mainly Singapore and Malaysia, and in China.

The Japanese occupied Hong Kong from December 1941 to August 1945 and during this time the University was closed. Many medical students fled to Free China and, through the help of Professor Gordon King, Dean of Medicine and

Professor of Obstetrics continued to study in various Chinese universities. At the same time, University staff in the internment camps in Hong Kong held senate and faculty meetings to draw up plans for the re-opening of the University after the war. As a result the Faculty was able to admit students again in October 1946. Under the able deanship of Professors Lindsay Ride and Gordon King, academic departments were established and in medicine, prominent teachers were A. J. S. McFadzean, who held the chair until 1974, Stephen Chang, and Gerald H. Choa. From a handful of staff, a few offices and one research laboratory, they built a department which has gained international recognition. So much for the past.

#### THE PRESENT

##### *Undergraduate medical education*

When I qualified in 1952, there were 58 in my class and the population of Hong Kong was 2.25 million. By 1972 the population had reached 4.1 million and a rapid expansion of the medical and health services took place. There was a need for more doctors; in 1980, the number of doctors per 1,000 population was only 0.72 (UK 1.33). To meet this need another faculty of medicine at the Chinese University of Hong Kong was opened in 1981. At present, each of the medical faculties have an annual intake of 160 students and the number of the doctors per 1,000 population in 1993 was 1.28.

The undergraduate curricula are modifications of a British one. Entrance is after A levels and the 5 year course leads to bachelor degrees in medicine and in surgery and these are recognized by the UK General Medical Council. Full registration to practice is attained after 1 year of internship. The majority of graduates undertake postgraduate medical education and training (PMET) in a hospital or clinic for several years before embarking on independent practice and formal and structured PMET for specialists has now been introduced (see below).

The undergraduate curriculum has undergone many modifications over the years. With the explosion in medical knowledge and its application, an overcrowded curriculum is one of the major problems facing medical schools worldwide. An American, Charles Aring has stated that 'It is our duty to lift from the student of medicine the crushing weight of factual material, the method by which some of us feel we are initiating him into the subtleties of medicine'.<sup>3</sup>

The relevance of basic medical science is emphasized. Molecular biology has revolutionized the science of medicine and revealed the genetic basis of many diseases. DNA technology is making significant contributions to the diagnosis, prevention and treatment of illnesses. Some argue that medical students are taught too much science but this surely depends on how it is presented. Leon Eisenberg has commented that '... medical education, far from being too scientific, suffers from too much emphasis on memorizing evanescent facts and too little on science as a way of framing questions and gathering evidence'.<sup>4</sup>

Behavioural science, general practice or family medicine and geriatrics have taken their rightful places in the curricula. The effectiveness of the behavioural science course is difficult to gauge but surely it is necessary in this era of advanced and sophisticated machinery, complicated medical procedures and measures for life-support. General practice courses help to emphasize ambulatory care, and expose students to medical practice away from institutions providing

secondary or tertiary care. The psycho-social and ethical aspects of patient care now also receive due emphasis.

Both Faculties have integrated or multi-disciplinary teaching involving several departments, often pre-clinical and clinical. Apart from community medicine and general practice or family medicine, community-based teaching occurs notably in paediatrics. There are also intercalated degree programmes in medical sciences as well as M.Phil. and Ph.D. programmes.

#### *Postgraduate Medical Education and Training (PMET)*

Medical graduates began to travel to the UK for postgraduate specialty training and to undertake research in the mid-1950s. Most returned with higher qualifications awarded by one of the medical Royal Colleges. The trainees were usually sponsored by the British Council, Sino-British Fellowship Trust or Commonwealth Fellowship/Scholarship schemes. Some travelled to the USA, mainly for training in research, with grants from the China Medical Board of New York (endowed by the Rockefeller Foundation). Subsequently, the Universities themselves, the Hong Kong Government and charitable organizations undertook to send medical graduates overseas for PMET but in general funds were inadequate in relation to demands. Therefore while the importance of PMET for vocational and research purposes has been recognized here for many years, with some exceptions training has not been well coordinated and has been available to relatively few. In the mid-1970s the University of Hong Kong appointed the first full-time director of postgraduate medical education and the government Medical and Health Department established a postgraduate training committee only in 1977. As early as 1965, the medical profession organized a Federation of Medical Societies of Hong Kong with the purpose of bringing together as a cohesive body the different specialist societies which had been formed. This met with limited success as neither the government nor the university was prepared to provide additional resources for PMET. Yet training did go on, often after normal working hours and, judging from the pass rate at professional examinations held by the medical Royal Colleges, general professional training met the required standards. But for higher specialty and advanced research training overseas visits were and are still necessary.

After prolonged negotiations, government was persuaded that systematic medical education must continue beyond the undergraduate medical course. Dr K. C. Calman, Chief Medical Officer, Department of Health, England succinctly stated that 'the purpose of medical education was to provide a range of competent medical practitioners (GP, specialists, public health medicine consultants) who can communicate effectively, make a diagnosis, assess prognosis, recommend and carry out treatment or institute effective public health measures. The purpose is not only to provide a service to the individual or community but, by research and development, to improve health'. This surely cannot be achieved in the 5 or 6 years in medical school. So in 1986, the Secretary for Health and Welfare set up a Working Party on Postgraduate Medical Education and Training chaired by Dr K. E. Halnan, FRCP, FRCR. The main recommendation was that an academy of medicine should be established 'to undertake and supervise postgraduate medical education and training'. As a result, the Hong Kong Academy of Medicine (HKAM) set up a preparatory committee in March 1990, and its deliberations ended in March 1992. In June 1992 the HKAM Ordinance was

passed by the Legislative Council and in August the Interim Council began to function. The Governor, The Hon. Mr Christopher Patten, officiated at the inauguration ceremony of the Academy on December 9, 1993 when over 2,000 Fellows of the Academy were admitted. The first general meeting at which an elected Council took over was held on July 19, 1994. The objects of the Academy are:

1. to promote the advancement of the art and science of medicine (including dentistry);
2. to foster the development of PME and CME; the study and practice of medicine and its specialties and medical research;
3. to promote the integrity of the medical profession; ethical conduct in the practice of medicine and its specialties and the improvement of the standards of such practice through training programmes approved by the Academy;
4. to promote the improvement of health care for Hong Kong citizens;
5. to foster a spirit of co-operation among medical practitioners; and
6. to facilitate the exchange of information and ideas in relation to all aspects of the art and science of medicine and matters connected with the medical profession.

Why an Academy? Hong Kong is too small for individual specialty colleges so it was decided that one organization comprising the different specialties would be more appropriate.

In anticipation many specialists had formed colleges, each having at least 50 fully trained specialists capable of teaching and training in the subject. At the HKAM's inauguration, there were 12 Academy Colleges: Anaesthesiologists, Community Medicine, Dental Surgeons, General Practitioners (Family Medicine), Physicians, Obstetricians and Gynaecologists, Orthopaedic Surgeons, Pathologists, Paediatricians, Psychiatrists, Radiologists and Surgeons.

The Academy coordinates the educational and other professional aspects of these Colleges and ensures comparable standards in training, assessment, examinations and the implementation of CME. This is achieved through the Council, each College President being a member, and the Education Committee which comprises the censor or chairman of the College's education committee, the deans of the two medical faculties and representatives from the Medical Council, the Hospital Authority and the Department of Health.

PMET is carried out by the Colleges and programmes and methods of evaluation are being planned and implemented. Training is for a minimum of 6 years after internship and is broadly divided into general and higher professional training. For physicians and paediatricians, an intermediate or 'entrance' examination along the lines of the MRCP(UK) has to be passed before commencement of higher or advanced training. The Hong Kong Colleges of Paediatricians and of Physicians are already holding conjoint examinations with the Royal Colleges of Physicians of the UK, and successful candidates are awarded the MRCP(UK) and a local certificate. A further 'exit' examination is not envisaged. However, some Academy Colleges may mount 'exit' examinations. However under all circumstances, the period of supervised training has to be at least 6 years. All formal examinations will include overseas external examiners. After completion of training there will be a final assessment, not necessarily with a formal examin-

ation, and if found satisfactory, the candidate will be recommended by the College for the award of Fellowship of the Hong Kong Academy of Medicine (FHKAM) in the respective specialty. In turn, the Academy will request that such awardees' names be placed on the proposed specialist register of the Hong Kong Medical Council. The FHKAM will be the only official higher qualification awarded locally.

Training, largely in-service, takes place in the public hospitals and clinics and will be supervised by the director of PMET at each institution. Formal teaching sessions such as lectures, seminars, grand rounds and refresher courses are held regularly and direct funding comes from annual subscriptions, fees and donations. Government has provided the larger hospitals and several out-patients' clinics with adequate libraries and teaching facilities and negotiations are underway for more staff to allow protected time for PMET activities. We will continue to invite overseas teachers and examiners to assist in the different programmes. In addition, as mentioned, visits to centres outside of Hong Kong will be necessary in many areas for higher professional training and research.

Research, both clinical and basic, is encouraged and Colleges have been asked to consider research, where appropriate, as part of higher training. It is also possible to incorporate PhD and MPhil programmes into this scheme.

It is timely to thank the Royal College of Physicians of Edinburgh and the many other overseas medical Royal Colleges, medical centres and universities for their enormous contributions to PMET in Hong Kong. There are now 167 local physicians holding the FRCP (Edin). The Royal Colleges have not only helped to train our specialists and research workers, but through inviting local Fellows to take part in professional examinations in the UK, Australasia, and in Hong Kong, and to organize such examinations locally, there is now a core of experienced local examiners. So we are in a position to conduct our own training and assessment.

In the past continuing medical education was organised mainly by specialty societies; now the medical faculties and hospitals will be coordinated and supervised by the Academy Colleges. The Royal Colleges of Physicians of Edinburgh, Glasgow and London in 1994 published Recommendations for CME for the Trained Physician which contains excellent advice. With the completion of the Academy Headquarters, there will be a ready venue for CME. The Headquarters will have offices for the secretariats of the Academy and Colleges, a variety of meeting rooms, a library and an examination secretariat to serve all the Colleges. It is due for completion in 1997 and has been made possible by a magnificent donation of HK\$165 million from the Royal Hong Kong Jockey Club, HK\$10 million from the Hong Kong Government and generous contributions from prominent citizens, philanthropists and the profession.

At present the majority of medical graduates pursue PMET after qualification. About 60–70 per cent ultimately enter private practice whereas 30–40 per cent remain in the public hospitals and clinics where most of the training now takes place. About 70 per cent of primary care is provided by private general practitioners while about 90 per cent of hospital beds are in the public sector, the majority under the Hospital Authority. The Department of Health has over 100 general and special (e.g. tuberculosis, STD, maternity and child health) clinics and has recently established polyclinics with teaching and training facilities.

Medical education in Hong Kong would not have been possible without the

support of government, charitable organizations, patients and philanthropists. In addition, the Royal Hong Kong Jockey Club, China Medical Board of New York, Croucher Foundation, Lee Hysan Foundation, to name but a few organizations, have made valuable contributions to patient care, teaching and research. It is hoped that such support will continue into the future. In 1887, at the inauguration ceremony of the Hong Kong College of Medicine for the Chinese, Patrick Manson, said '... Medicine has opportunities to spread and advertise itself denied to others ... The wants of the poor, the eccentric in human nature—these give medicine her opportunity'. There is truth in this today.

#### THE FUTURE

Hong Kong reverts to Chinese sovereignty in 1997. The Joint Declaration between China and the UK should result in a smooth transition with no drastic changes in the education and health care systems. But the future is always difficult to predict and more so when political changes are to take place. The Goodenough Report's pronouncement that 'a properly planned and carefully conducted medical education remains the foundation of a comprehensive health service' is universally accepted. So I remain optimistic.

It is anticipated that the undergraduate medical curriculum will be less congested and that there will be more emphasis on ambulatory care, family medicine, geriatrics and the psycho-social aspects of medicine. J. K. Jordan considers that 'medical schools need no longer produce the complete doctor, but should aim to fashion multipotential graduates'.<sup>5</sup> It follows that the more specialized, technical and vocational aspects of medicine should be taught in the postgraduate period, provided the latter is carefully planned and does not suffer from similar overloading due to subjects being transferred from the undergraduate curriculum. One obstacle to this is that funding of departments in medical schools is related to student contact hours, so department heads are reluctant to lighten the curriculum. This could be partly rectified if departmental funding includes the cost of its PMET commitments.

In the future the need for general practitioners or family physicians will continue. With improved funding and more staff, the present polyclinics of the Department of Health should be able to increase the training capacity for general practitioners. In addition to the two general practice teaching clinics of the Universities, there are 14 polyclinics for training in specialties such as family medicine and community medicine but there are not enough teachers or trainers. As for hospital-based training, by the year 2000 there will be 3 new hospitals in the northern Kowloon region and all these have incorporated PMET facilities. Currently manpower surveys are being carried out by the Government and Academy Colleges and with their commitment to PMET, it is likely that recommendations for staffing will take PMET into consideration.

With the establishment of the Hong Kong Academy of Medicine and its Colleges, and the support of the profession, Government and the public, PMET and CME are on firm ground and should develop progressively into an even sounder and more effective and comprehensive system. The strength of the Academy lies in its Colleges which will be directly responsible for the educational and training programmes and examinations. The Academy is also a single body representing those directly concerned with professional and continuing medical education and training. The Academy is very young, so much has to be done and

it will not be smooth sailing. China places great emphasis on education, science and technology and maintaining high standards in the professions. At the inauguration of the Academy, representatives from China's leading medical institutions and organizations honoured us with their presence. So with the support of our colleagues and friends, especially from the well-established sister Colleges, Academies and medical centres, I am confident the Academy's objectives will be achieved.

Medical education in Hong Kong began over a hundred years ago and three medical graduates of Aberdeen University played a vital pioneering role. The Scottish tradition has persisted through outstanding medical men and women from your country teaching here, further nurtured by our very close links with your College. My lecture is in honour and memory of Sir Stanley Davidson. I hope you will agree that the subject was appropriate, for Sir Stanley was a great Scotsman, physician and educationist. I am honoured to have been invited to deliver the lecture and thank you for your attention.

## REFERENCES

- <sup>1</sup>Richmond J. Sir Stanley Davidson. *Current Medicine* 1994; 4: 309-21.
- <sup>2</sup>Choa GH. A history of medical education in Hong Kong. *Synapse* (Hong Kong College of Physicians) 1994; Supplement 2: 3-6.
- <sup>3</sup>Aring CD. *The Understanding Physician*. Detroit. Wayne State Univ Press 1971.
- <sup>4</sup>Eisenberg L. Science in medicine: too much or too little and too limited in scope. *Am J Med* 1988; 84: 485-90.
- <sup>5</sup>Jordan RK. In Anderson J, ed. The continuum of medical education. *Journal of Royal College of Physicians of London* 1993; 27: 405-7.

## THE MANAGEMENT OF CORONARY ARTERY DISEASE: A TIME FOR REAPPRAISAL

B. M. Hegde,\* *Kasturba Medical College, Mangalore, India*

Simple linear mathematical relationships govern most of our thinking in medicine. Even in the present day when the genes responsible for both atherosclerosis and myocardial infarction have been identified, we are lost in our age old belief that coronary artery disease is due to atherosclerosis narrowing the epicardial vessels and that the treatment is revascularisation on an acute or long term basis.

The naive thinking that the evolution in time of body organ functions depends solely on the initial conditions and that changing the initial state will have a salutary effect on the final outcome has repeatedly been proved wrong. The dynamic human body does not follow these linear relationships and doctors have been predicting the unpredictable!

With this background let us look at myocardial ischaemia. It is believed that subclinical ischaemia (so called silent ischaemia) damages the myocardium and subsequent periods of ischaemia may eventually cause an infarct. An editorial in the BMJ clearly states that this is not the case.<sup>1</sup> Marber and colleagues have shown by elegant studies in dogs that brief periods of ischaemia trigger adaptive changes in the myocardium protecting it from subsequent prolonged ischaemic insult.<sup>2</sup> This is called ischaemic preconditioning. Clinical studies have shown similar preconditioning in humans.<sup>3</sup> With further work I think the mist around the pathophysiology of myocardial damage will be lifted and we may be able to induce preconditioning pharmacologically.

Let us look critically at the logic of doing either angioplasty or coronary bypass grafting in patients who have an anatomic stenosis of one or more of the epicardial coronary arteries. The whole reasoning is based on two fundamental postulates: that a tight coronary block is always potentially dangerous and that attempts at revascularisation are always effective and safe.

Whereas tight stenoses of these vessels gradually progress to a complete block as time evolves,<sup>4</sup> the occluded vessel does not pose the risk of an infarct and its complications or even of a long term detrimental effect on ventricular function. Complete occlusion resulting in infarction is almost always the result of thrombotic obstruction of a near normal vessel.<sup>5</sup> In the absence of an infarct, the stenoses do not alter the long term changes in total left ventricular function despite evidence of exercise induced signs and symptoms of myocardial ischaemia.<sup>6</sup>

It is, therefore, likely that silent ischaemia or even the reduced blood supply due to fixed coronary lesions may be beneficial to the system by facilitating myocardial toleration of a future major failure of blood supply. The danger to those with coronary syndromes, therefore, lies in the sudden occlusion of a near normal artery producing an infarct or unstable angina, brought on by plaque disruption with consequent platelet adhesion and thrombosis.<sup>7</sup> If only we could unravel the mystery of this sudden clotting, we would be able to manage these

\*Dean and Director of Postgraduate studies.