Achievements in Medicine

1985 - 1995

Department of Medicine

The University of Hong Kong

UNIVERSITY OF HONG KONG
DEPARTMENT OF MEDICINE
QUEEN MARY HOSPITAL

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PROFESSOR ROSE T.T. YOUNG

5th January 1996

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FOREWORD

During the past ten years, the Department of Medicine of the University of Hong Kong has made significant contributions to medical advances. It has achieved this largely through the efforts of its devoted staff.

The Department has a staff whose names have become a byword for their expertise in this part of the world, and indeed further afield, and which under the able leadership of Professor T. K. Chan have established for it a reputation which is second to none in the region.

Modern medicine requires the utmost discipline and skill from its practitioners, as technology advances man's knowledge of how the human body works and different medical specialities become ever more sophisticated. Yet at the same time it also requires the very highest standards of compassionate patient care and devotion.

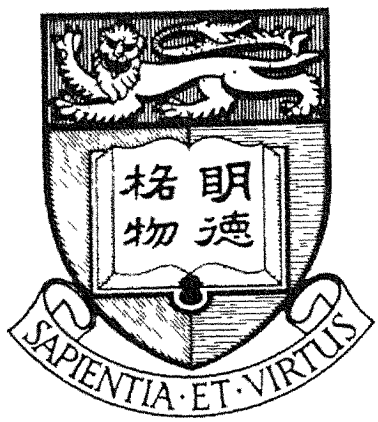
This essential combination has always been a prime feature of the work of medical staff in the Department of Medicine. Both in carrying out research which is continually achieving break-throughs into illnesses which are endemic to Hong Kong, and in applying that research with ever increasing success in curing illness, the Department has set, and maintains, standards which are surely among the highest and most exacting of those required by any of the University's different disciplines.

Over the past ten years this learning and application has resulted in successful treatments of many illnesses which for centuries had taken an unchecked toll on the citizens of Hong Kong and I am therefore delighted to contribute this Foreword to the Department's publication Achievements in Medicine 1985-95 in the hope that both the wider public and the academic community can know something about these splendid achievements in the field of medical advances in Hong Kong.

Wang Gungwu
Vice-Chancellor
The University of Hong Kong

June 1995

THE UNIVERSITY OF HONG KONG



The University's Mission

Since its foundation in 1911, the University of Hong Kong has given unparalleled service to Hong Kong and the region, drawing on the great cultural traditions of China and the West. We shall strive to continue to offer the highest standards of teaching, research, and scholarship as practised in the wider, international academic community, in an environment conducive to creativity, to learning, and to freedom of thought, enquiry and expression.

We shall continue to produce graduates who are equipped to contribute to the intellectual, social, political, moral and material development of the societies in which they are to live; and who recognize that the development of contemporary societies reflects diversity alongside consensus and acknowledgement of the past as well as concern for innovation.

We shall continue to undertake research, consultancy and other forms of service to the local and regional communities which will enrich our teaching and advance our quest for wisdom and truth.

We shall make known our mission in Hong Kong and internationally.

MISSION AND OBJECTIVES OF THE DEPARTMENT OF MEDICINE

Mission

To produce doctors equipped to practise medicine of the highest standard and in the best interests of their patients and the community, and to inspire them to strive for and achieve academic excellence.

Objectives

1. To maintain and enhance undergraduate education to coincide with current and future development in medical education and medical sciences so that undergraduates attain the highest standards, comparable to the best medical schools in the world.

2. To nurture and augment excellence in research in clinical medicine and pertinent basic sciences.

3. To integrate with relevant disciplines in the Medical Faculty and the University with a view to facilitating appropriately balanced and relevant teaching and research programmes.

4. To maintain and further develop clinical services by providing superior patient care, by always striving to remain a leading referral centre for patients, by promoting the development and implementation of innovative advances in clinical management, and by contributing to the improvement of primary health care in the community.

5. To encourage and improve upon postgraduate and continuing medical education and training as well as to promote leadership in subspecialty training and development.

6. To serve the community by contributing to health education of the public and by playing a prominent role in public organizations advocating community health.

7. To foster and consolidate academic links and collaboration with tertiary institutions and professional bodies locally and outside of Hong Kong.

PREFACE

The Department of Medicine was established with the appointment of John Anderson as founding professor in 1923. In the seven decades since its inception, it has evolved from a humble beginning into the leading light in Medicine in Hong Kong. Moreover, its influence has spread further afield. Its acronym UMU, as generations of students and practitioners like to call it, has become synonymous with excellence. However, without clear documentation, this valuable history will inevitably turn hazy with the passage of time. Professor Rosie Young's lively account "Vision and mission – a history of the Department of Medicine" is therefore timely and encapsulates its most memorable events and achievements. Of equal and perhaps greater significance are the present and the future. Professor S.K. Lam articulates the aspirations of all staff in his thoughtful article "The Department of Medicine: today and tomorrow". A remarkable development in the past decade is the blossoming of the medical subspecialties; the established ones have become more sophisticated and the young ones have matured. Their various endeavours are faithfully recounted by staff of the respective subspecialties.

Throughout the years, the Department has been fortunate to have talented and dedicated heads. The Department is greatly indebted to Professor T.K. Chan, Head of Department from July 1989 to July 1995, for his inspiring leadership. The personal tribute by Professor Sir David Todd attests to our recognition of Professor Chan's many contributions and accomplishments.

The idea of publishing this book was conceived in May 1995 and the book was completed three months later in August. This was made possible with the enthusiastic help of all the medical and secretarial staff, to whom the Editorial Board is deeply grateful.

Y. L. Yu
Editor

August 1995

VISION AND MISSION
A HISTORY OF THE DEPARTMENT OF MEDICINE

As a major discipline in a medical school the history of the Department of Medicine is inseparable from that of the Medical Faculty and the University of Hong Kong. Before the appointment of a full time professor in 1923 the teaching of medicine in the Hong Kong College of Medicine (1887-1911), and later within the ambit of the University of Hong Kong, was undertaken by part-time staff who were medical officers in government service or experienced doctors in private practice. Needless to say, such piecemeal arrangements for teaching were far from satisfactory. A donation from the Rockefeller Foundation led to the appointment of John Anderson as Founding Professor and enabled the Department of Medicine to be formally established in 1923. For a brief period leading up to the Second World War, Professor W J Gerrard became the head. The early years of the Department, like that of the Faculty of Medicine and the University, were plagued by uncertainties, as funding depended largely on fees and private donations. From time to time the Faculty was under threat of having to close down due to lack of funds.

The number of medical students was small, about 16 graduates a year at around the outbreak of the Second World War. The department was also extremely small, consisting of a full time professor and one or two assistants. Much of the clinical teaching was delegated to part-time staff. Only the top students had the honour of being appointed as assistants, all of whom were excellent and dedicated teachers. Regrettably, the professor had no control over the use of beds in any hospital where teaching took place (the Nethersole Hospital or the Government Civil Hospital). Access to patients had to be negotiated and depended on the goodwill of Government medical officers. It was not until 1936 that beds in the Government Civil Hospital were formally allocated to the Department in exchange for the provision of clinical service. This was the beginning of the inseparable link between teaching and clinical service as the main functions of the clinical departments. When Queen Mary Hospital opened its doors in the following year and the Department of Medicine was allocated more beds in the new hospital, the staff were jubilant thinking that they would have a firm base to teach and to engage in meaningful research. However, their jubilance was short-lived because of the onslaught of the Second World War. The entire University including the Department closed down from Christmas 1941 to mid 1945 when Hong Kong was occupied by the Japanese.

When peace came and the University resumed operation in late 1945, a Government consultant at Queen Mary Hospital, P B Wilkinson, doubled up as acting Professor of Medicine, a post he held for two years before the war. In 1948, the University appointed a Glasgow University graduate, A J S McFadzean to the Chair and headship of the Department.

1948-1974 (Head: Professor A J S McFadzean)

What ensued was a most productive era. Professor McFadzean's vision, clinical and administrative ability, commitment to research and strong personality were the main factors which enabled the Department to take off to new heights, despite inadequate financial support. The period saw a rapid expansion of the University, the Faculty of Medicine and the Department. It was also a period when Hong Kong witnessed a phenomenal growth in its population. The University was the only tertiary institution in the territory until the establishment of the Chinese University of Hong Kong in 1963 and had the only medical faculty until the Chinese University established its faculty in 1980. Funding from the Government was secured through the University and Polytechnics Grants Committee. To meet the demand for doctors, the intake of students rose from 60 or so to around 150 a year in 1970. The Department of Medicine was responsible for the teaching of medicine in all three clinical years, but only 244 beds in Queen Mary Hospital were directly under the control of university clinical departments. It therefore had to spread its wings to other hospitals. Consultants in the government medical units of Queen Mary Hospital and other

Government hospitals, such as Queen Elizabeth Hospital, Sai Ying Pun Infectious Disease Hospital and High Street Mental Hospital, as well as consultants in government subvented hospitals such as the Ruttonjee Sanatorium and Grantham Hospital were appointed as Honorary Clinical Lecturers to share the teaching. The Department was grateful to all these eminent Hong Kong doctors who provided not only their time and expertise but also their facilities, and for allowing their patients to be accessed for the teaching of medical students. This was the beginning of the Department's close collaboration with the medical profession outside the University. Other benefits from this arrangement became obvious as the years went by. It laid the foundation for the development of postgraduate professional training, both basic and in the medical subspecialties, and the Department was in a position to play a leading role in the process.

In 1948 the Department's full time staff consisted of the professor, a senior lecturer, a lecturer and 2 clinical assistants. As was the fashion of the day, the curriculum was entirely confined to general medicine with no specialisation. However, infectious diseases (especially tuberculosis) which were very prevalent in Hong Kong, were given special attention and were taught in the Ruttonjee Sanatorium and in the Sai Ying Pun Infectious Disease Hospital. The teaching of paediatrics and psychiatry was also the responsibility of the Department, but was delegated to government consultants in Queen Mary Hospital and the High Street Mental Hospital. Paediatrics became a separate department in 1962 with the appointment of Professor C E Field as the head and psychiatry followed in 1971 with the appointment of Professor P M Yap.

Whilst a senior lecturer at Glasgow University, A J S McFadzean became interested in haematology, on which subject he published a number of original and important papers. After his arrival in Hong Kong, he continued to pursue this interest. He also directed his attention to chronic liver diseases: cirrhosis and carcinoma of the liver both being very prevalent in Hong Kong. His intellectual curiosity was contagious. Before long, all members in the department were engaged in research and some registered for the MD degree. Professor McFadzean realised that in clinical departments, teaching, research and clinical service must go hand in hand, and that in the pursuit of excellence all three must receive adequate attention. As leader of the only academic Department of Medicine in the territory, he also realised that the time had come to develop the medical subspecialties. This would provide appropriate teaching and clinical services, to train future leaders in the profession, and to put Hong Kong on the world map of medicine through its research achievements. To accomplish this, it was first necessary to train junior staff in specific subspecialties at renowned overseas centres. Naturally, in the early years most were sent to Scotland and England and later many were sent to the USA and Australia. In addition to haematology and gastroenterology, junior staff were trained in cardiology, endocrinology, immunology, nephrology, and respiratory medicine. Having spent a year or two abroad, these young lecturers returned to Hong Kong full of enthusiasm and equipped with the knowledge and expertise to engage in the development of their respective subspecialties. While working in their respective centres of excellence, they had also been exposed to the principles and techniques of both basic and clinical research. Needless to say, they had experienced a different culture and established many international contacts, which proved extremely useful for future academic and professional exchange.

A few months before he retired Professor McFadzean made an important decision which had a lasting effect on the direction of research. He appreciated that clinical staff working in busy, service-orientated departments would find it difficult to engage in basic research requiring new and sophisticated technology. Besides, there is enormous advantage in having a well-trained scientist in the department to advise and inspire students on matters concerning relevant research methodology and science. Dr Vivian Chan, PhD (London) was interviewed by Professor McFadzean and became the first non-clinical lecturer in the Medical Faculty. She joined the Department a few months after Professor McFadzean's retirement in 1974 and for her scientific contributions over the years, she now holds a personal chair.

Accommodation has always been a problem for the clinical departments, especially in the early period when the Faculty was rapidly expanding. The Lewis Laboratory, responsible for cardio-respiratory service and research, was the first of its kind established at Queen Mary Hospital. In 1963, a Professorial Block was built next to the main hospital to accommodate lecture theatres, staff offices, research laboratories and departmental libraries. The Department of Medicine was allocated a total floor area of 1,510 square metres on two floors. Additional space in the main hospital itself also permitted the Department to allocate beds for dedicated subspecialty services.

1974-1989 (Head: Professor David Todd)

Over this period the headship of the Department of Medicine was taken on by Professor David Todd. When he retired from the headship, the Department honoured him with a one-day scientific symposium (Festschrift) in the Rayson Huang Theatre of the main University campus and published a book "Achievements in Medicine 1974-1989" to commemorate the occasion. Much of the Department's history of that era was recorded with eloquence in that book, but certain achievements warrant highlighting. Under his able leadership the Department experienced another period of growth and consolidation. New subspecialties, such as clinical pharmacology and neurology emerged and pre-existing ones went from strength to strength with increase in staff numbers and improvement in facilities. Research flourished in every field. Research funding to the Department which had previously been abysmal, was greatly enhanced through competitive grants from the Research Grants Council of the University and Polytechnic Grants Committee and the Croucher Foundation. Generous donations from the Wu Chung family and Dr Lee Wing Tat were also very helpful in facilitating the Department's academic endeavours. Employing the technology of modern molecular biology, the Department engaged in pioneering work on the genetics of haematological disorders, such as haemophilia and thalassemia. Collaborative research with other departments inside and outside the Medical Faculty was encouraged. The idea of a University-wide centre for molecular biology research, culminating in the establishment of an Institute of Molecular Biology was initiated and nurtured to fruition. In response to the changing requirements of healthcare in Hong Kong, a small General Practice Unit (headed by a senior lecturer recruited from Australia) was established in the Violet Peel Health Centre. The centre has since moved to Ap Lei Chau and its academic staff has increased to 3, a professor, senior lecturer and lecturer. The Department also took on the additional responsibility of teaching dental students and mounting the licentiate program. Besides the achievements recorded in the aforementioned book, it should be appreciated that during this period, professional training in both general medicine and all the subspecialties became firmly established. This occurred not only within the Department but extended to other hospitals in Hong Kong. It was both encouraging and flattering to the staff of the Department, that doctors came from other hospitals in order to undertake periods of subspecialty training under their supervision. Such an arrangement benefited both parties.

The Department has always enjoyed strong links with the Royal Colleges of Physicians in the United Kingdom and Australia. Holding of the entire MRCP (UK) examination in Hong Kong in 1985 was a milestone in the history of the Royal Colleges. It was the first time that they had mounted the entire examination outside Great Britain. It illustrated the trust the Colleges had in Professor Todd as the chief organiser and examiner, and their confidence in the training provided to the prospective candidates. All these events were but the preparation for greater things to come. Regarding the development of medicine in the territory, Professor Todd became the Founding President of the Hong Kong College of Physicians in 1987. The Hong Kong Academy of Medicine which was inaugurated in December 1993, was the brainchild of Professor Todd and a few eminent members in the medical profession. He also became the Founding President of the Academy.

1989-1995 (Head: Professor T K Chan)

The achievements of Professor McFadzean and Professor Todd were hard acts to follow. Having been taught and groomed by both men, Professor

T K Chan's research interests, clinical competence and administrative abilities found him equal to the task. He was therefore able to leave his mark and succeed under circumstances which might have overcome less able or less dedicated individuals. The establishment in 1991 of the Hospital Authority with its management reform and the devolution of budget management to the Department by the Unversity, imposed heavy and more complex responsibilities. After his appointment as Chief of Service for Medicine in Queen Mary Hospital, he had to spend many long hours to acquaint himself with the basics of management skills in order to 'manage' the University department's own units and what was previously termed the Government Medical Unit. He also had to balance the one-line budget allocated to the Department by the University. In this respect, the acquisition of computers and the recruitment of a senior administrator must have saved the day.

It needed a firm but understanding personality to manage what had become a huge department. It needed unique skills to give so many subspecialties maximum autonomy in order to develop their own individual characteristics and at the same time exercise just enough supervision and control to preserve a corporate spirit. It was a difficult and challenging task, but the necessary fine balance was achieved. By now, the Department comprised not only the facilities and staff at Queen Mary Hospital but also some in the Grantham, Tung Wah and Fung Yiu King hospitals as well as those in the General Practice Unit. In addition to academic staff appointed by the University, there was an equal complement of consultants, senior medical officers and medical officers from the Hospital Authority working under the same umbrella, as well as a host of technical, administrative and clerical staff. With the appointment of a consultant and medical officer, the geriatric unit was established a year ago. The first bone marrow transplant unit in Hong Kong was established in Queen Mary Hospital in 1990. A Diabetes Centre (funded by private donation in the early stage) opened in 1994 and has since become the prototype of the shared care concept advocated by the Hospital Authority. When David Todd became President of the Academy of Medicine, T K Chan succeeded him as the President of the College of Physicians, thus providing continuity for the further development of physician training in Hong Kong.

Having been taught by Professor McFadzean and worked in the Department since 1954, I think I am well placed to write its history. Like many of my colleagues, I have watched the growth of the Department with admiration, and I am glad that I have been given the opportunity to play a role, albeit a modest one. From the beginning, the Department was fortunate in having had able, dedicated and visionary heads, and in attracting the best graduates from Hong Kong and elsewhere to its staff. Naturally, over the years many have left and made room for new blood. Some have gone abroad to take up Chairs in the best universities in North America and Australia. Others have become leaders in the medical profession or senior administrators in the public service. Of the many who have distinguished themselves in their professional career, I would like to mention Professor Gerald H Choa and Professor Y W Kan who are household names in Hong Kong and abroad. Both were lecturers in the McFadzean era. After leaving the Department in the mid fifties, Professor Choa became a Government consultant and later entered into an illustrious administrative career as Director of Medical and Health Services and the Founding Dean of the Medical Faculty of our sister University. He is currently enjoying his well deserved retirement in Hong Kong. In the early sixties Professor Y W Kan left the Department to pursue his research interest in haematology in the United States. He has carried out landmark studies on the molecular genetics and diagnosis of hereditary anaemias (thalassemia and sickle cell disorders) and has recently embarked on research involving gene therapy. Professor Kan now occupies a prestigious chair at the University of California at San Francisco. He continues to maintain close links with the University and the Department through his appointment as Honorary Director of the Institute of Molecular Biology.

Over the years, several former members of the Department have died. Dr C P Fong, hailed as a role model for young doctors by Professor McFadzean, died tragically from drowning in 1950. The C P Fong medals in Pathology and

Medicine were established in his memory. Dr Stephen K P Chang, a graduate of the Peking Union Medical College who joined the Department in the immediate postwar years and left to become a consultant at Nethersole Hospital in the sixties, was recognised as a brilliant teacher and astute clinician. His memory is perpetuated through several worthy causes, including grants to help needy students, travelling grants for students to undertake electives, travelling fellowship to support young doctors undertaking overseas training and the Stephen Chang Visiting Professorship. Dr C C Wong who also joined the Department in its early days left the Department for Canada in the late 60s and died there about 20 years later. Last but not least, Professor McFadzean died after a short illness in his home town, Troon, only a few months after he left Hong Kong on retirement. The Department's McFadzean Library and the A J S McFadzean lectureship were established in his memory from donations from his students, colleagues, friends and patients. In counting its blessings and reflecting on the ingredients leading to the Department's success, their legacy and valuable contributions should not be forgotten.

A clinical department in a University has many functions and roles in teaching, research, clinical service and administration. It also has the obligation to lead and guide the profession, to march with time and to strive for excellence. In the pursuit of these goals, it has to strike a balance in the utilisation of manpower, facilities and other resources. It would be naive to claim that in the last four decades the Department succeeded in all its goals and achieved perfection in all that had to be accomplished. Nevertheless, it is apparent that the Department has passed all its tests with flying colours.

Later this year, Professor S K Lam will take over the headship from Professor T K Chan, only two years before Hong Kong returns to China. The Department will face new hurdles. The vision of the Department's forefathers was recently transcribed into a mission statement. With these ideals, the fine tradition of the Department and the talented staff who remain and those who will join in future - there is every reason to be confident that the Department of Medicine will be more than adequate to meet its challenges and fulfil its noble mission.

Rosie T. T. Young

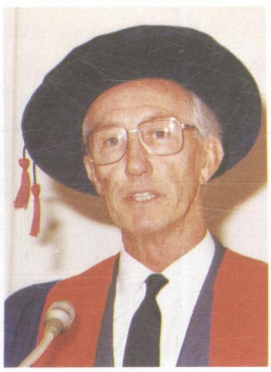
Founding Members of Subspecialties

Dr. Joseph Y. C. Pan
Cardiology

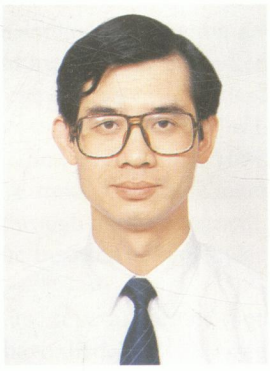
Prof. Cyrus R. Kumana
Clinical Pharmacology

Prof. Rosie T. T. Young
Endocrinology

Dr. K. S. Lai
Gastroenterology & Hepatology



Dr. J. G. C. Munro
General Practice



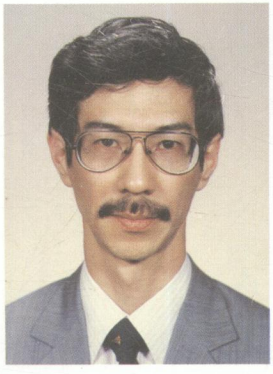
Dr. L. W. Chu
Geriatric Medicine

Prof. Sir David Todd
Haematology & Oncology

Prof. Vivian N.Y. Chan
Molecular Medicine

Dr. Richard Y.H. Yu
Nephrology

Dr. C.Y. Huang
Neurology

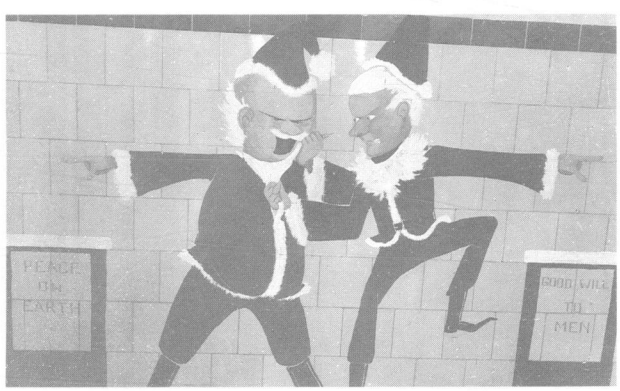


Dr. Donald Y. C. Yu
Respiratory Medicine

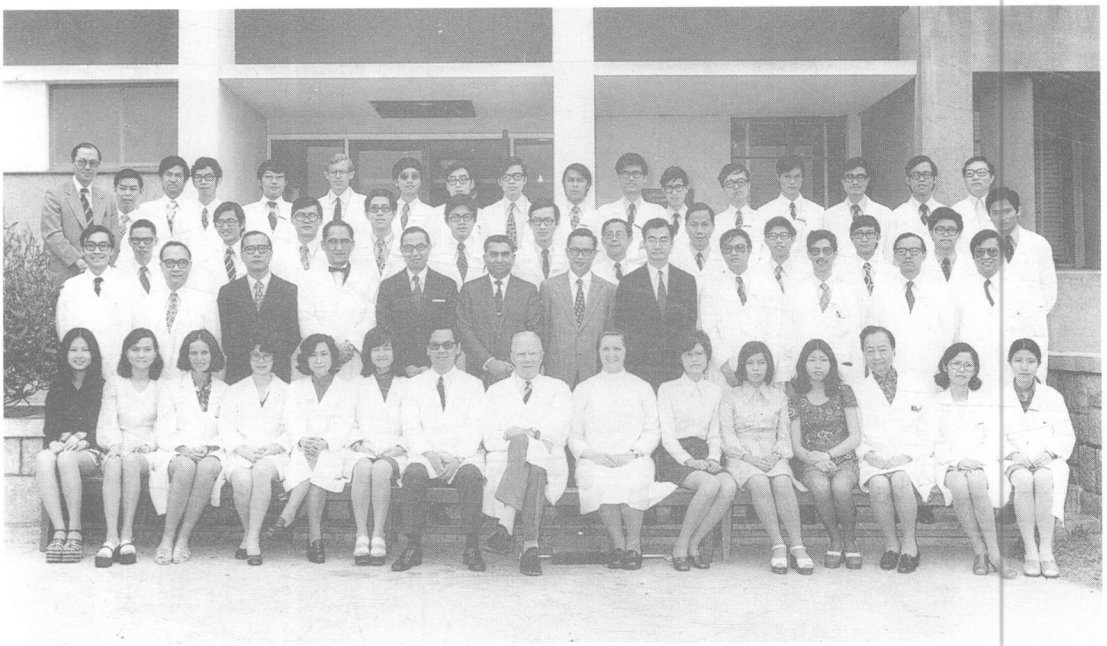
Dr. Anthony K. Y. Lee
Rheumatology

Prof. A. J. S. McFadzean and Dr. Stephen Chang

Ragging the Professor and Mrs. McFadzean in 1962



A. J. S. McFadzean and Francis Stock drawn by Donald Yu



Department of Medicine, 1974

Prof. A. J. S. McFadzean hosting a cocktail at the Hong Kong Country Club for staff of the Department and Faculty, 1974

The Department honoured Prof. A. J. S. McFadzean in the Farewell Banquet, 1974

The old guard in their youthful days

Medical staff of the Department in 1985

Medical staff of the Department in 1989

MRCP celebration dinner in the 1980s

A departmental function held in the McFadzean Library, 1988

Symposium on "Achievements in Medicine 1974-1989" on 25 November 1989 at the Rayson Huang Lecture Theatre

SYMPOSIUM ON

ACHIEVEMENTS IN MEDICINE, 1974-1989

DEPARTMENT OF MEDICINE
UNIVERSITY OF HONG KONG

Honours

PROFESSOR DAVID TODD

DATE & TIME: 25 NOVEMBER, 1989, 2-6 p.m.

VENUE: RAYSON HUANG LECTURE THEATRE
University Main Campus
University of Hong Kong

PROGRAMME

2 – 4 p.m.	
Tribute & Biography	*T.K. Chan*
Achievements in Cardiology	*C.H. Cheng*
Relevance of Clinical Pharmacology	*C.R. Kumana*
Molecular Genetics in Haematology	*Vivian Chan*
Better Treatment for Lymphoma	*R.H.S. Liang*
Achievements in Immunology	*K.L. Wong*
Achievements in Gastroenterology	*S.K. Lam*
The Birth & Development of a New Specialty: Hepatology	*Anna Lok*
HCC & Hepatitis Vaccine	*C.L. Lai*
4 – 4.30 INTERMISSION (TEA)	
* *	
4.30 – 6 p.m.	
Achievements in Endocrinology I	*Christina Wang*
Achievements in Endocrinology II	*Karen Lam*
Neurological disorders in Hong Kong Chinese	*Y.L. Yu*
Achievements in Renal Medicine	*I.K.P. Cheng*
Respiratory Diseases – the Wheeze and the Woe	*W.K. Lam*
Epilogue	*Rosie Young*

ALL ARE WELCOME

THE DEPARTMENT OF MEDICINE: TODAY AND TOMORROW

Prof. Rosie Young, in her usual modest self, wrote the department's history without mentioning that she made history herself by becoming the first lady Dean of the Faculty of Medicine in 1983, Pro-Vice Chancellor in 1985, and subsequently Senior Pro-Vice Chancellor in 1988. She was undoubtedly inspired by Prof. A.J.S. McFadzean, who was Vice Chancellor in 1964 and Dean in 1967. These University positions have important bearings on the objectives and operations of the Department, which has always put the University before itself.

The University formally laid down its Mission Statement in 1992 (see page i), and in line with the mission, the Department has formulated its Mission and Objectives recently (see page ii). Perhaps the best piece of evidence that the Department has fulfilled its goals and objectives is the knighthood conferred recently on Prof. David Todd for his contributions to medicine in Hong Kong. Sir David took the helm of the Department in 1974-1989.

The subsequent headship by Prof. T.K. Chan has launched the Department to new heights. In fact, to what it is today: 7 professors, 10 readers/senior lecturers and 15 lecturers in leading roles of a General Practice Unit and 12 medical subspecialties (cardiology, clinical pharmacology, critical care, endocrinology, gastroenterology, geriatrics, haematology & oncology, immunology & rheumatology, molecular medicine, nephrology, neurology, and respiratory medicine), 12 research and clinical laboratories and 60 research assistants/ technicians; and with the formation of the Hospital Authority in 1990 and the integration of the medical units at the Queen Mary Hospital and including the Department's extensions at the Grantham Hospital, Tung Wah Hospital and Fung Yiu King Hospital - 10 consultants, 1,034 beds, 75 outpatient clinics, 577 full-time and 120 honorary staffs.

These clinical services, subspecialty practices and research facilities provide a conducive environment and ample opportunities for undergraduates and postgraduate trainees to learn medicine. Our mission in teaching is clear: to produce doctors equipped to practice medicine of the highest standard and in the best interests of their patients and the community, and to inspire them to strive for and achieve academic excellence. Our teachers won the two Best Teacher Awards of the Medical Faculty on the two occasions when such an award was open to contest. Each year our trainers and their training programmes attract about 20 postgraduate trainees locally and overseas. Our academics have assumed leading roles in local and international professional organizations advocating postgraduate and continuing medical education, such as the presidency of the Hong Kong Academy of Medicine and the Hong Kong College of Physicians and the chair of the Hong Kong Medical Council, as well as in local and international academic bodies and institutions such as membership of the University (& Polytechnics) Grants Committee, Research Grants Council, the Council of the Royal Australian College of Physicians and visiting professorships in reputable universities outside of Hong Kong.

The Department's involvement in community service is extensive. Its members have helped to found and have sat on the council or advisory board of many voluntary organizations that promote community health, such as Hong Kong AIDS Trust Fund, Anti-TB Association, The Hong Kong Brain Foundation, The Hong Kong Heart Foundation, The Hong Kong Kidney Foundation, The Hong Kong Liver Foundation, The Hong Kong Lung Foundation, The Charitable Renal Concern Organization, and the health exhibitions held annually by the Medical Society of the Hong Kong University Students Union.

The zest and quest for research by the academics has kept up a research output of the highest standard. An average of 150 papers are published each year in general and subspecialty international journals of high repute and impact. Our

investigators have attracted university and outside grants of close to $6 million in 1994/1995. They are in heavy demand by international conferences as chief organizers and keynote speakers, and they are well represented in editorial boards of international journals and authors lists of world-wide textbooks. Their authority is needed in the council, advisory boards and examination committees of many international academic bodies, and their laboratories have captivated the world's top investigators who visit the Department by the dozens each year.

What are our weaknesses? Where lies our future?

Undergraduate teaching and postgraduate education.

This is the most fundamental duty of the teaching staff. Three defects need to be rectified. (i) The University has appeared to give more weight to research achievements than to teaching in assessing candidates for promotions and appointments. (ii) The teachers' teaching skill is mainly derived from their past experience as students and from witnessing the way their seniors teach; there has been no formal training on teaching skills. (iii) The clinical load remains heavy and consumes 55% of the teachers' working hours, and this is translated into a pressure on the teachers to rush through their undergraduate teaching, as well as a compromised programme of postgraduate training (including internship), and a less than satisfactory devotion to research.

Happily, the first two defects have been recognized by the University, which has set up the Centre for the Advancement of University Teaching and the Teaching Quality Committee. The Department will strongly support these activities. Our own Working Group in Teaching Assessment has indeed proposed better coordination, better evaluation and better recognition. While strengthening the academic manpower is the answer for the third deficiency, this can be compensated to a certain extent by administrative arrangements and improvement of healthcare support to release time for teaching, and for that matter, learning and peer assessment. The solution necessarily has to be at the University and Hospital levels, but the Department will be proactive in its procurement. Postgraduate training will be in line with the direction laid down by the Academy of Medicine, with three years of basic physician training and three years of subspecialty training. Postgraduate education should and will be more structured and formalized.

Research

Like all other professionals, a doctor has an obligation to upkeep the standard and standing of his or her profession. This can be achieved by (i) continuously improving his or her professional skill, (ii) participating in the learning and teaching processes of continuing medical education, and (iii) engaging in medical research, at least at certain stage of his or her career such as while undergoing postgraduate training. Research runs in the blood of the academics and forms the backbone of the medical profession.

A major path for the Department has been clinical or applied research. Recent years has seen it moving into basic science research, and rightly so. A major defect and the greatest limitation that the Department faces is the profound shortage of laboratory space, both for clinical and basic science research, particularly the latter. To rectify, this needs intense lobbying at the University and hospital levels.

There is a general feeling that recognition by the Department of an individual's research output should be done regularly and not only at the time of assessment of the individual's promotion. In principle, research work needs to be discussed frequently at the research team's level, regularly at the subspecialty level, and formally at the departmental level.

Clinical service

The Department has always recognized a physician as one who practises general medicine solely or with a special interest in a subspecialty, and will continue to do so since we believe that such a physician will be able to manage his or her patients in their best interest. Emergency and general medicine and subspecialty development will be continued in response to the needs of the

patients and the community, and in line with the Hospital Authority's general policies. Dermatology needs to be installed as a subspecialty, not only to meet the growing demand for the service but also to provide the environment for teaching and research.

As the Hong Kong population ages and becomes more affluent, the development in geriatrics, neurology, critical care/ respiratory medicine, cardiology and medical oncology will need special attention. In diseases such as diabetes, chronic renal failure, oncology and various gastroenterological diseases, the trend is to reduce hospitalization. Thus, outpatient and ambulatory care in these areas will need particular support. Moreover, many surgical operations have been replaced by less invasive procedures and even to simple pharmacological treatment, as in cardiology and gastroenterology; such developments will also need assessment and support. Medical advances have made many of the impossible possible, notably in haematology, medical oncology and immunology. The Department takes pride in the development and implementation of innovative advances such as molecular medicine and bone marrow transplantation, and will continue to play a leading role in these and other new areas. Medical advances make demand on all the three forms of resources: human, space and money. The use of resources must by necessity be judicial and balanced at all levels of health care.

Organization and administration

The undergraduate teaching and postgraduate educational programmes, the research activities and conferences, the complex integration of medical services and the consequent size of the Department, and the move to better defined subspecialty divisions call for a more structured organization and a stronger administration.

There is a good Chinese saying that you should review the old to understand the new, and in the words of Winston Churchill, the longer you look back, the farther you can look forward. The last 10 years have witnessed proliferative growth in the Department; the next decade will see fruitful maturity.

S. K. Lam

The Department in 1995

The academic staff

Staff of the University and Hospital Authority (HA) in the same department

Senior University and HA staff

The academic and research staff

The professors, unit head and senior nursing staff of the Department

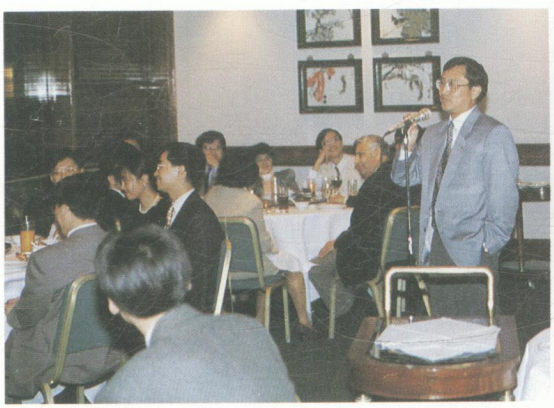
The professors with the administrative, secretarial and technical staff

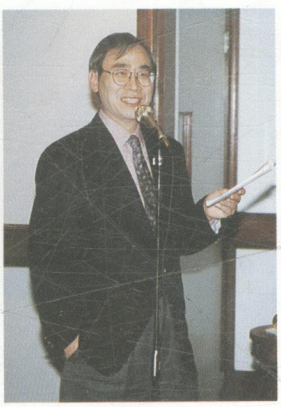
A lecture to undergraduates in progress

A lecture in "Protected Time" (Friday afternoon) for Basic Physician Trainees

MRCP celebration dinner, 1995

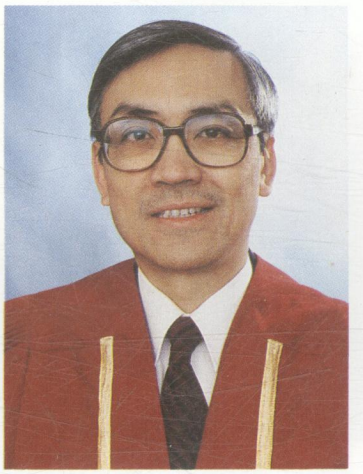
Many happy faces





Light-hearted speeches and jokes are a regular feature

PROFESSOR CHAN TAI-KWONG - A PERSONAL TRIBUTE



The late Professor AJS McFadzean, head of the Department of Medicine from 1948 to 1974, was a strict task-master. Arriving late for ward rounds was unheard of. However, there was one exception. House Officer T K Chan could arrive bleary-eyed 10 minutes late, say good morning with a sheepish grin, and evoke no rebuke!

I have known TK since his III year student days and must confess he has fulfilled all expectations as a physician, teacher, clinical scientist, haematologist and medical leader. His undergraduate record is distinguished, and the late Professor of Anatomy, Francis Chang, said that TK was his best student ever! It is fortunate this praise did not point him towards surgery, which would have been Medicine's loss. His curriculum vitae speaks for itself. He is foremost a clinician, and an excellent one at that, but has always been keenly interested, able and versatile in research. While at University College Hospital, London and later at the University of Rochester Medical School, he carried out studies on red cell physiology and osmotic changes which were so profound that only a select few could fully understand the papers which appeared in leading physiology journals. In Hong Kong, he did classic work on erythrocyte glucose-6-phosphate dehydrogenase deficiency and these papers are still being quoted. This was followed by research into hypersplenism, molecular genetics of thalassaemia, haemophilia, Christmas disease and the haematological malignancies and his publications in international journals and books number over 150. He rapidly became recognised as a leading haematologist and has been Counsellor for Hong Kong, International Society of Haematology since 1980, and Vice-President of that Society's Asian-Pacific Division since 1991. He has trained many haematologists and his most recent contribution in this area was the establishment of the bone marrow transplant unit at Queen Mary Hospital, the first in Hong Kong.

Life in the early days was not a bed of roses. Dr CC Wong, Senior Lecturer in Medicine in the 1960's, would assign him the task of looking for the scolex of taenia solium in the faeces of treated patients - this involved collection of several entire stools and filtering them through a fine sieve! He was also asked to look for microfilaria on several occasions in the blood of patients hourly from 10:00 pm to 3:00 am - no wonder he was late for the 8:30 am ward rounds.

He is a gifted and dedicated teacher and leader in the profession. When I became head of department in 1974, SC Tso and TK and later TK alone organized the teaching, research and patient care of the haematology section of the Department and helped make it a centre of international repute. When he became head of the Department, his talent as an astute and effective administrator fully blossomed and I retired from the chair with the realization that it was in good, and perhaps better, hands. He has also made enormous contributions to postgraduate medical education; as President of the Hong Kong College of Physicians, member of the Hong Kong Academy of Medicine from its preparative days, and as the organizer for the MRCP(UK) examinations in Hong Kong. Links with the UK, Australasia, Singapore and Malaysian sister Colleges/ Academies have been further strengthened through his efforts.

This Department, the University and hospital will be the poorer for his departure and we wish him every success and happiness in his new endeavours.

David Todd

Farewell banquet for Professor T. K. Chan at the Hong Kong Country Club on 15 July 1995

Friends and staff at the banquet

A smooth transition

Prof. R. Young before her lively introduction of Prof. T. K. Chan

Speech by the new Head Prof. S. K. Lam

A serious speech

Entertaining speeches well received

A substantial souvenir

A thoughtful souvenir: Prof. T. K. Chan's student photo nearly 40 years ago, retrieved from the Faculty Office

CURRICULUM VITAE OF PROFESSOR CHAN TAI-KWONG

Date of Birth: 25th April, 1938

Marital Status: Married

Degrees & Professional Qualifications

M.B.,B.S.	(with Honours) H.K.U., 1961 Distinctions in Anatomy, Pharmacology and Medicine
M.R.C.P.	(Edinburgh), 1966
M.R.C.P.	(London), 1966
F.R.C.P.	(Edinburgh), 1975
F.R.C.P.	(London), 1977
M.D.	The University of Hong Kong, 1983
F.R.C.P.	(Glasgow), 1990
F.R.A.C.P.	1990
F.R.C. Path.	(London), 1992
F.H.K.C.P.	1986
F.H.K.A.M. (Medicine)	Hong Kong Academy of Medicine, 1993
F.A.M.S.	Academy of Medicine, Singapore, 1994

Prizes, Awards & Honor

Government Scholarship to Faculty of Medicine, University of Hong Kong, 1956-1961

Ng Li Hing Prize in Anatomy, 1958

C.P. Fong Gold Medal in Medicine, 1961

Ho Fook & Chan Kai Ming Prize in Final Examination, 1961

Anderson Gold Medal for highest aggregate of marks in all MB examinations, 1961

Commonwealth Scholarship, 1966-1968

China Medical Board Fellowship, 1972-1973

Sir Patrick Manson Gold Medal - for MD thesis, 1983

Non-official Justice of Peace, 1993

William J Gies Distinguished Scientist Lecturer, International Association Dental Research 73rd General Session, 1995

Current Appointments

July 1991-now	Chair of Medicine, Professor of Medicine, The University of Hong Kong.
July 1989-now	Head, Department of Medicine, The University of Hong Kong.
Oct 1992-now	Chief of Service (Medicine), Queen Mary Hospital.
July 1989-now	Chief of Division of Haematology/Oncology, Department of Medicine, Queen Mary Hospital.
Mar 1990-now	Director, Bone Marrow Transplant Centre, Department of Medicine, Queen Mary Hospital.

Other Appointments

July 1989-now	Head, University Department of Medicine, Grantham Hospital.
July 1989-now	Head, University Department of Medicine, Tung Wah Hospital.
April 1990-now	Deputy Director (Acting), Institute of Molecular Biology, The University of Hong Kong.
July 1989-now	Director, Board of Directors, Hong Kong Tuberculosis, Heart and Chest Diseases Association.
Oct 1991-now	Consultant to Hospital Authority.

July 1990-now	Overseas Advisor (Hong Kong), Royal College of Physicians, London.
Oct 1989-now	Local Organiser, MRCP (U.K.) Examination.
Oct 1988-now	Examiner, MRCP (U.K.) Examination.

Previous Appointments and Training

1962-1964	Clinical Assistant, Department of Medicine, Queen Mary Hospital, The University of Hong Kong.
1964-1965	Assistant Lecturer, Department of Medicine, Queen Mary Hospital, The University of Hong Kong.
1965-1967	Commonwealth Scholar.
1965-1966	Honorary Registrar, Department of Medicine, Royal Infirmary, Glasgow.
1966-1967	Research Assistant, Department of Haematology, University College Hospital Medical School, London.
1965-1973	Lecturer, Department of Medicine, Queen Mary Hospital, The University of Hong Kong.
Oct 1972-July 1973	China Medical Board Fellow and Visiting Assistant Professor in Medicine, Department of Medicine, University of Rochester School of Medicine and Dentistry, Rochester, New York, U.S.A.
August 1973-March 1978	Senior Lecturer, Department of Medicine, Queen Mary Hospital, The University of Hong Kong.
April 1978-Oct 1980	Reader, Department of Medicine, Queen Mary Hospital, The University of Hong Kong.
Nov 1980-June 1991	Professor (Titular), Department of Medicine, The University of Hong Kong.
July 1989-June 1991	Head, Department of Medicine, The University of Hong Kong.

University Committees (Current)

1980-now	Member of Senate, The University of Hong Kong.
1965-now	Member of Medical Faculty Board.
1989-now	Member, Clinical Curriculum Committee.
1989-now	Member, Medical Faculty Research Grants Committee.
1989-now	Member, Dean and Heads Committee, Faculty of Medicine.
1991-now	Member, Faculty Resource Allocation Committee.
1988-1994	Member, University Research Committee. Chairman, Specialist Panel in Medicine and Dentistry.
1992-now	Member, Academic Development Committee, The University of Hong Kong.

University and Polytechnic Grants Committee & Hong Kong Government (Current)

1991-now	Member, Specialist Panel in Medicine and Biology, Research Grants Committee.
1993-	Member, Medical Subcomittee, UPGC.
1994-now	Honorary Medical Advisor, Office of the Commissioner for Administrative Complaints.
1993-	Member, Council for the AIDS Trust Fund, Ex-gratia Payment Subcommittee.

Professional Organisation Committees (Current)

1992-now	President, Hong Kong College of Physicians. Council Member, Interim Council, Hong Kong Academy of Medicine.
1984-now	Member, Exemption Committee, Licentiate Committee, Medical Council of Hong Kong.
1985-now	Member, Standing Committee on Quotable Qualification, Medical Council of Hong Kong.
1992-now	Vice-President, Asian Pacific Division, International Society of Haematology.
1982-now	Independent Assessor, NH & MRC Grants, Australia.
1991-now	Council Member and Subscriber, Hong Kong Marrow Match Foundation.

Hospital Authority Committees (Current)

1991-now	Member, Co-ordinating Committee on Internal Medicine. Chairman, Training Sub-committee. Chairman, Joint Committee on Internal Medicine Training, HKCP-HA (JCIMT)
1991-now	Member, Hospital Governing Committee, Grantham Hospital.
1991-now	Member, Hospital Medical Management Committee, Queen Mary Hospital.
1990-now	Member, Ethics Committee, Hospital Authority, Hong Kong.

Membership of Professional Organisations

Foundation Fellow, Hong Kong College of Physicians.

Foundation Fellow, Hong Kong Society of Haematology.

Full Member, Hong Kong Society of Medical Genetics.

Fellow, Hong Kong Institute of Science.

Full Member, Hong Kong Medical Association. Council Member 1985-1988.

Fellow, International Society of Haematology
Counsellor for Hong Kong, 1980-1988.
Counsellor-at large, Asian Pacific Division, 1988-1992.
Vice-President, 1992-now.
Chairman, Organizing Committee, VII Congress Asian-Pacific Division ISH, November 1991.

Examiner for the Following:

A ***Local***

Examiner, Final MB & BDS Examination for many years.

Chief Examiner, MBBS Final Examination in Medicine since 1990 -

Chief Examiner, BDS Examination in Medicine since 1989 -

Chief Examiner in Medicine, 1989, 1990, Licentiate Committee, Medical Council, Hong Kong

B ***Overseas***

Observer, MRCP (UK) Examination, 1986 - 1987

Examiner, MRCP (UK) Examination, 1988 - now.

Local Organizer for MRCP (UK) Examination, 1990-now

External Examiner in Medicine, National University of Singapore, March 1990

C ***Higher Degrees***

M.Med.	1984	Gibbons S.S. (University of Melbourne)
	1985	Brooks A.M.V. (University of Melbourne)
M.Phil.	1986	Liu W.S. (H.K.U., Biochemistry)
	1988	Lee S.K. (C.U.H.K., Clinical & Pathological Sciences)

	1988	Walsh P. (C.U.H.K., Clinical & Pathological Sciences)
	1990	Au K.C. (H.K.U., Biochemistry)
Ph.D.	1976	Au K.S. (H.K.U., Biochemistry) - Additional Examiner
	1985	Cheung W.K. (H.K.U., Biochemistry)
	1987	Tan-Un K.C. (H.K.U., Biochemistry)
M.D. (H.K.U.)	1990	Liang, H.S. Raymond
	1990	Ho, P.C.
	1990	Lam, S.L. Karen
	1990	Luk, S.L.
	1991	Lok, S.F. Anna
	1991	Wun, Y.T.
	1991	Hui, W.M.
	1992	Wong, K.L.
	1992	Lee, S.H.
	1992	Leung, P. Maurice
	1993	Leung, W.H.
	1993	Sham, S.T. Jonathan
	1994	Lai, C.L.
	1994	Lee, S.S.
	1994	Mak, K.Y.
	1994	Ng, O.L. Irene

Publications

A *Chapters in Books/Proceedings*

1. **Chan TK.** Glucose-6-phosphate dehydrogenase deficiency: a review. In: Reynolds DC, Chongsuphajaisiddhi T and Tuchinda P, eds. Proceedings of XV Seameo-Tropmed seminar: tropical pediatric problems in Southeast Asia. Bangkok, 1976:110-113.

2. **Chan TK**, Chan V, Teng CS, and Yeung RTT. Die progredienz der diabetischen retinopathie die wirkung von Gliclazid im Vergleich zu Glibenclamid. in Gliclazid. Ein neuer aspekt in der oralen diabetestherapie, Herausgegeben von K. Schoffling. Dr C Wolf und Sohn, Munchen 1985:67-73.

3. Chan V, **Chan TK**, Todd D, Wong LC, Ghosh A, Tang M, Chan FY, Wan CW and Ma HK. Prenatal diagnosis of alpha and beta thalassaemias and haemophilia A. In: Lin HJ, Swaminathan R, Robertshaw AM, eds. Proceedings of Fourth Asian-Pacific Congress of Clinical Biochemistry. Hong Kong, 1988:57-60.

4. Chan V, **Chan TK** and Todd D. Prenatal diagnosis of homozygous α thalassaemia 1 (haemoglobin Barts hydrops fetalis). In: Loukopoulos D, ed. Prenatal diagnosis of thalassemia and haemoglobinopathies, Florida: CRC Press Inc, 1989: 209-220.

5. **Chan TK.** Chapters on: Tribute and biography of Professor David Todd, and Achievements in haematology/oncology. In: Achievements in Medicine 1974-1989. Hong Kong University Press, 1989.

6. Todd D and **Chan TK.** Abnormalities of blood volume in disorders of the spleen. In: AJ Bowdler, ed. The spleen structure, function and clinical significance. London: Chapman and Hall Medical 1990: 191-205.

B *Original Articles*

1. **Chan TK**, Todd D and Wong CC. Erythrocyte glucose-6-phosphate dehydrogenase (G6PD) deficiency in Chinese. BMJ 1964; 2:102.

2. **Chan TK**, Todd D and Wong CC. Tissue enzyme levels in erythrocyte G6PD deficiency. J Lab Clin Med 1965; 66: 937-942.

3. **Chan TK**, Todd D and Wong CC. Erythrocyte G6PD activity in hemoglobin H disease. Nature 1965; 209: 1147-1148.

4. **Chan TK**. G6PD in West Scotland: Lancet 1966; 2:752.

5. **Chan TK**. Erythrocyte G6PD deficiency. Bull Hong Kong Chin Med Assoc 1968; 20:37.

6. Bowdler AJ and **Chan TK**. The time course of red cell lysis in hypotonic electrolyte solutions. J Physiol 1969; 201: 437-452.

7. **Chan TK**, Chesterman CJ, McFadzean AJS and Todd D. The survival of G6PD deficient erythrocytes in patients with typhoid fever on chloramphenicol therapy. J Lab Clin Med 1971; 77: 177-184.

8. **Chan TK** and Lai MCS. Double heterozygosity for G6PD deficiency. J Med Genet 1971; 8: 149-152.

9. Chan CS, **Chan TK** and Lee SK. Direct Coombs test and methyldopa. Lancet 1971; 2: 881.

10. **Chan TK**, Mak LW and Ng RP. Methemoglobinemia, Heinz bodies and acute massive intravascular hemolysis in lysol poisoning. Blood 1971; 38: 739-744.

11. Ng RP, **Chan TK** and Todd D. NBT test: false negative and false positive results. Lancet 1972; 1: 1341-1342.

12. **Chan TK**, Todd D and Lai MCS. G6PD: identity of erythrocyte and leukocyte enzyme with report of a new variant in Chinese. Biochem Genet 1972; 6: 119-124.

13. **Chan TK** and Todd D. Characteristics and distribution of G6PD deficient variants in South China. Am J Hum Genet 1972; 24:475- 484.

14. **Chan TK**. G6PD deficiency, typhoid and co-trimoxazole. Lancet 1972; 2: 1258.

15. So PL, **Chan TK**, Lam SK, Teng CS, Yeung RTT and Todd D. Cortisol metabolism in G6PD deficiency. Metabolism 1973; 22: 1443-1448.

16. Tso SC and **Chan TK**. Paroxysmal nocturnal haemoglobinuria and chronic myeloid leukaemia in the same patient. Scand J Haematol 1973; 10: 384-389.

17. **Chan TK**, and McFadzean AJS. Haemolytic effect of trimethoprim: sulphamethoxazole in G6PD deficiency. Trans Roy Soc Trop Med Hyg 1974; 68: 61-62.

18. **Chan TK**, Todd D and Tso SC. Red cell survival studies in G6PD deficiency. Bull Hong Kong Med Assoc 1974; 26: 41-48.

19. **Chan TK**, La Celle PL, and Weed RI. Slow phase hemolysis in hypotonic electrolyte solutions. J Cell Physiol 1975; 85: 47-58.

20. **Chan TK** and Todd D. Haemolysis complicating viral hepatitis in patients with G6PD deficiency. BMJ 1975; 1: 131-133.

21. **Chan TK**, Todd D and Tso SC. Drug-induced haemolysis in glucose-6-phosphate dehydrogenase deficiency. BMJ 1976; 2: 1227-1229.

22. Tso SC, **Chan TK** and Todd D. Aplastic anaemia: a study of prognosis and the effect of androgen therapy. Q J Med 1977; 46: 513-529.

23. Todd D, **Chan TK**. Hemoglobin Bart's levels in umbilical cord blood: failure as a method for distinguishing mild from severe α-thalassemia trait in the Chinese. Hemoglobin 1978; 2: 389-392.

24. Chan V, **Chan TK**, Wong V, Tso SC and Todd D. The determination of antithrombin III by radioimmunoassay and its clinical application. Br J Haematol 1979; 41: 563-572.

25. Lee AKY, Chan V and **Chan TK**. The identification and localization of antithrombin III in human tissues. Thromb Res 1979; 14: 209-217.

26. **Chan TK** and Chan V. The effect of venous occlusion on antithrombin III, plasminogen activator and fibrinogen degradation product (fragment E) levels. Thromb Res 1979; 14: 525-534.

27. Chan V and **Chan TK**. Heparin-antithrombin III binding: in vitro and in vivo studies. Haemostasis 1979; 8/6: 373-389.

28. Chan V and **Chan TK**. Antithrombin III in fresh and cultured human endothelial cells: a natural anticoagulant from the vascular endothelium. Thromb Res 1979; 15: 209-213.

29. Ng RP, Tse TF and **Chan TK**. Platelet survival in patients with artificial heart valves and the effect of antiplatelet agents. Singapore Med J 1979; 20(1 Suppl):30-37.

30. **Chan TK**. The anaemias. H K Pract 1979; 1: 4-11.

31. Wang C, Ng RP, **Chan TK** and Todd D. Effect of combination chemotherapy on pituitary-gonadal function in patients with lymphoma and leukaemia. Cancer 1980; 45: 2030-2037.

32. Todd D, Chan V, Schneider RG, Dozy AM, Kan YW and **Chan TK**. Globin chain synthesis in Haemoglobin New York. Br J Haematol 1980; 46: 557-564.

33. Tso SC, Wong V, Chan V, **Chan TK**, Ma HK and Todd D. Deep vein thrombosis and changes in coagulation and fibrinolysis after gynaecological operations in Chinese - the effect of oral contraceptives and malignant disease. Br J Haematol 1980; 46: 603-612.

34. Wang CCL, Lin HJ, **Chan TK**, Salen G, Chan WC and Tse TF. A unique patient with coexisting cerebrotendinous xanthomatosis and ß-sitosterolemia. Am J Med 1981; 71: 313-319.

35. Wang C, **Chan TK**, Yeung RTT, Coglan JP, Scoggins BA and Stockigt J R. The effect of triamterene and sodium intake on renin, aldosterone and erythrocyte sodium transport in Liddle's syndrome. J Clin Endocrinol Metab 1981; 52: 1027-1032.

36. Chan V, Lai CL and **Chan TK**. Metabolism of antithrombin III in cirrhosis and carcinoma of the liver. Clin Sci 1981; 60: 681-688.

37. **Chan TK** and Chan V. Antithrombin III, the major modulator of thrombosis, is synthesized by human endothelial cells. Thromb Haemost 1981; 46: 504-506.

38. **Chan TK**, Chan WC and Weed RI. Erythrocyte hemighosts: a hallmark of severe oxidative injury in vivo. Br J Haematol 1982; 50: 575-582.

39. Chan V, Yeung CK and **Chan TK**. Antithrombin III and fibrinogen degradation product (fragment E) in diabetic nephropathy. J Clin Pathol 1982; 35: 661-666.

40. **Chan TK**, Chan V, Teng CS and Yeung RTT. Effets du gliclazide et du glibenclamide sur les fonctions plaquettaires, la fibrinolyse et l'equilibre glycemique chez des diabetiques presentant une retinopathie. Sem Hop Paris 1982; 58: 1197-1200.

41. Chan V and **Chan TK**. Characterization of Factor VIII related protein synthesized by human endothelial cells: a study of structure and function. Thromb Haemost 1982; 48: 177-181.

42. Wong V, **Chan TK**, Chan V, Tso SC, Todd D and Ma HK. The effect of oral contraceptives on coagulation and fibrinolytic parameters in the Chinese - A prospective study. Thromb Haemost 1982; 48: 263-265.

43. Tso SC, **Chan TK** and Todd D. Venous thrombosis in haemoglobin H disease after splenectomy. Aust NZJ Med 1981; 12: 635-638.

44. Lin HJ, Wang C, Salen G, Lam KC and **Chan TK**. Sitosterol and cholesterol metabolism in a patient with coexisting phytosterolemia and cholestanolemia. Metabolism 1983; 32: 126-133.

45. Wong PHC, Nandi PL, Ho FCS and **Chan TK**. Acute intravascular hemolysis indicating thrombosis of Bjork-Shiley aortic prosthesis. Arch Intern Med 1983; 143: 1471-1472.

46. Pan HYM, Wang RYC and **Chan TK**. Efficacy of two proprietary preparations of frusemide in patients with congestive heart failure. Med J Aust 1983; 140: 221-222.

47. Chan V and **Chan TK**. Cell-free synthesis of factor VIII related protein. Thromb Haemost 1983; 50: 835-837.

48. Pun KK, Yeung CK and **Chan TK**. Acute intravascular haemolysis due to accidental formalin intoxication during haemodialysis. Clin Nephrol 1984; 21: 188-190.

49. **Chan TK**, Chan GTC and Chan V. Hypofibrinogenaemia due to increased fibrinolysis in two patients with acute promyelocytic leukaemia. Aust NZ J Med 1984; 14: 245-249.

50. Chan V, Ghosh A, **Chan TK**, Wong V and

Todd D. Prenatal diagnosis of homozygous α thalassaemia by direct DNA analysis of uncultured amniotic fluid cells - a preliminary experience. BMJ 1984; 288: 1327-1329.

51. Chan V, Leung NK, **Chan TK**, Ghosh A, Kan YW and Todd D. BamH I polymorphism in the Chinese: its potential usefulness in prenatal diagnosis of ß thalassaemia. BMJ 1984; 289: 947-948.

52. Ghosh A, Woo JSK, Wan CW, MacHenry C, Wong V, Ma HK, Chan V and **Chan TK**. Evaluation of a prenatal screening procedure for thalassaemia carriers in a Chinese population based on the mean corpuscular volume (MCV). Prenat diagn 1985; 5: 59-65.

53. Chan V, **Chan TK**, Liang ST, Ghosh A, Kan YW and Todd D. Hydrops foetalis due to an unusual form of Hb H disease. Blood 1985; 66: 224-228.

54. Mok CK, Boey J, Wang R, **Chan TK**, Cheung KL, Lee PK, Chow J, Ng RP and Tse TF. Warfarin versus dipyridamole-aspirin and pentoxifylline-aspirin in the prevention of prosthetic heart valve thromboembolism: a prospective randomized clinical trial. Circulation 1985; 72: 1059-1063.

55. Lee PK, Wang RYC, Chow JSF, Cheung KL, Wong VCW and **Chan TK**. Combined use of warfarin and adjusted subcutaneous heparin during pregnancy in patients with artificial heart valve. J. Amer Coll Cardiol 1986; 8: 221-224.

56. Ghosh A, Tang MHY, Liang ST, Ma HK, Chan V, **Chan TK**. Ultrasound evaluation of pregnancies affected by homozygous α-thalassaemia-1. Prenat Diagn 1987; 7: 307-313.

57. Chan V, **Chan TK**, Cheng MY, Kan YW, Todd D. Organisation of the ζ–α genes in Chinese. Br J Haemat 1985; 64: 97-105.

58. Chan V, **Chan TK**, Cheng MY, Leung NK, Kan YW and Todd D. Characteristics and distribution of ß thalassaemia haplotypes in South China. Hum Genet 1986; 73: 23-26.

59. Mok CK, Lee PK, Boey J, Wang R and **Chan TK**. Prevention of prosthetic heart valve thromboembolism. Cardiol Board Rev 1986; 3:87-95.

60. Woo E, Yu CP, Mann K S, Cheung FMF, **Chan TK** and Todd D. Intracerebral chloromas. Report of a case and review of the literature. Clin Neurol Neurosurg 1986; 88: 135-139.

61. Chan V, **Chan TK**, Tso·SC and Todd D. Combination of three alpha-globin gene loci deletions and Hemoglobin New York results in a severe Hemoglobin H syndrome. Am J Hemat 1987; 24: 301-306.

62. Chan V, **Chan TK**, Ghosh A, Wong LC, Ma HK, Kan YW and Todd D. Application of DNA polymorphisms for prenatal diagnosis of ß thalassemia in Chinese. Am J Hemat 1987; 25: 409-415.

63. Chan V, **Chan TK**, Chebab FF and Todd D. Distribution of ß thalassemia mutations in South China and their association with haplotypes. Am J Hum Genet 1987; 41: 678-685.

64. Liang R, Todd D, **Chan TK**, Ng RP, Ho FCS. Gastrointestinal lymphoma in Chinese: a retrospective analysis. Hematol Oncol 1987; 5: 115-126.

65. Liang R, Todd D, **Chan TK**, Wong KL, Ho F, Loke SL. Peripheral T-cell lymphoma. J Clin Oncol 1987; 5: 750-755.

66. Liang R, Todd D, **Chan TK**, Ng RP, Choy D, Loke SL and Ho FCS. Follicular non-Hodgkin's lymphoma in Hong Kong Chinese: a retrospective analysis. Hematol Oncol 1988; 6: 29-37.

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DIVISION OF CARDIOLOGY
AT QUEEN MARY HOSPITAL/TUNG WAH HOSPITAL
AND AT GRANTHAM HOSPITAL

The Division of Cardiology has a long tradition and is one of the most innovative cardiac centres in Hong Kong, providing a comprehensive clinical, teaching and research programme. It comprises branches operating at Queen Mary Hospital (QMH), Tung Wah Hospital (TWH) and The Grantham Hospital (TGH).

At QMH and TWH, the current staff are:

Dr. C.P. Lau, *MD, FHKAM (Medicine), FHKCP, FRCP, FRCP (E)*
Reader and Chief of Division

Dr. Stephen W.L. Lee, *MBBS, MRCP(UK), FKHAM (Medicine), FHKCP*
Consultant

Dr. David S.W. Ho, *MBBS(Hons)(Sydney) PhD(Sydney), FRACP, FHKAM (Medicine), FHKCP*
Lecturer

Dr. H.W. Chan, *MBBS, MRCP(UK), FKHAM(Medicine), FHKCP*
Senior Medical Officer

Dr. C.K. Wong, *MBBS, MRCP(UK), FKHAM (Medicine), FHKCP*
Senior Medical Officer

Dr. Y.K. Lau, *MBBS, DABIM, FHKAM (Medicine), FHKCP*
Senior Medical Officer

Dr. Linda Lam, *MBBS MRCP(UK) FHKAM (Medicine), FHKCP*
Senior Medical Officer

Dr. William Ng, *MBBS, MRCP (UK), FHKCP*
Medical Officer

Dr. Kathy Lee, *MBBS MRCP (UK)*
Medical Officer

Trainees

Dr. K.K. Chan, *MBBS, MRCP (UK)*
Medical Officer

Dr. W.H. Chen, *MBBS, MRCP (UK)*
Medical Officer

Dr. H.F. Tse, *MBBS, MRCP (UK)*
Medical Officer

Dr. N.S. Lok, *MBBS*
M Phil student

Past staff in the 1985-95 period

Dr. C.H. Cheng, *MBBS, FRCP(E), FRCP(G), FHKAM(Medicine), FHKCP*

Dr. Joseph S.F. Chow, *MBBS, FRCP(E), FHKAM(Medicine) FHKCP*

Dr. P.C. Fong, *MBBS, MRCP(UK) FHKAM(Medicine), FHKCP*

Dr. P.K. Lee, *MBBS FRCP*

Dr. W.H. Leung, *MD, MRCP(UK), FHKAM(Medicine), FHKCP*

Dr. John P.S. Li, *MBBS MRCP(UK), FHKAM(Medicine), FHKCP*

Dr. Y.T. Tai, *MBBS, MRCP(UK), FHKAM(Medicine) FHKCP*

Dr. Rebecca Y.C. Wang, *MD, FRCP(E)*

At Grantham Hospital, the Division is staffed by:

Dr. K.L. Cheung, *MBChB (Leeds), FRCP, FHKAM (Medicine), FHKCP*
Consultant Cardiologist

Dr. W.H. Chow, *MBBS, FRCP(E), FHKAM (Medicine), FHKCP*
Consultant Cardiologist

Dr. Alex S.B. Yip, *MBBS(London), FRCP(E) FHKAM (Medicine), FHKCC FHKCP*
Senior Medical Officer

Dr. Simon L. Chow, *MBBS, MRCP(UK), FRACP, FHKAM (Medicine), FHKCP*
Senior Medical Officer

Dr. T.C. Law, *MBBS, MRCP(UK), FHKAM (Medicine) FHKCP*
Senior Medical Officer

Trainees

Dr. Elaine M.C. Chau, *MA(Oxon), MBBS(London), MRCP(UK)*
Medical Officer

Dr. Katherine Y.Y. Fan, *MBBS(Dundee), MRCP(UK)*
Medical Officer

Dr. Patricia H.T. Hon, *MA, MBBChir(Cantab), MRCP (UK)*
Medical Officer

Past staff in the 1985-95 period

Dr TM Tse, *MBBS, MRCP(UK), FHKAM(Medicine), FHKCP*

CLINICAL SERVICE

Queen Mary Hospital

In-patient and out-patient care are based at Queen Mary Hospital (QMH). About 5000 acute cardiac cases are admitted to QMH annually, 5% with acute myocardial infarction (AMI), 40% with cardiac failure, 20% with unstable angina, 20% with arrhythmias, and the rest with other cardiovascular disorders. The facilities at QMH include a 6-bed Coronary Care Unit (CCU), 8 male, and 9 female cardiology beds. The CCU was established in 1992. It has state-of-the-art haemodynamic and electrocardiographic monitoring as well as 4 respirators. Because of the load of cardiac patients, many of them are nursed in various medical wards in the hospital.

Non-invasive cardiac assessment facilities include exercise electrocardiography ECG and thallium testing, cardiopulmonary assessment, echocardiography (transthoracic and transoesophageal with colour flow mapping), dobutamine stress echocardiography, Holter monitoring, late potential assessment, ambulatory blood pressure monitoring and tilt table testing.

Invasive cardiac facilities include a bi-plane cardiac catheterisation laboratory which was upgraded in 1992 with support equipment including an intravascular ultrasound imaging machine, an intra-aortic balloon pump, and a percutaneous cardiopulmonary bypass machine. For many years this cardiac catheterisation laboratory at QMH has been one of the busiest laboratories in the territory, providing by far the largest volume of invasive services. For the year 1994, 1143 cardiac catheterisation procedures were performed. The Division has a solid reputation in interventional procedures. 314 percutaneous transluminal coronary angioplasty (PTCA) were performed over this period, including 102 intracoronary stenting, 11 directional atherectomy, 26 rotational atherectomy with a significant number of these patients having multiple vessel disease and poor ventricular function.

The Cardiac Clinic and Hypertension Clinic take place at Sai Ying Pun and Tang Chi Ngon Out-patient departments, while the Arrhythmia, Pace-maker and PTCA Clinics take place at QMH. Sai Ying Pun alone has a volume of 719 new and 10418 old cases annually.

The Division is also the leading centre for cardiac pacing and arrhythmia management. In the year 1994, 83 permanent pacemakers were implanted. In addition, 189 electrophysiology studies including 125 radiofrequency ablation procedures were performed. In addition, 5 implantable cardioverter defibrillator and 40 cases of transvenous atrial defibrillation were performed.

TWH Cardiac Rehabilitation and Prevention Centre

The Cardiac Rehabilitation Unit, established since 1992, is located at TWH. It has 6 male and 6 female beds, and 5 day care beds for cardiac rehabilitation. There is also an active out-patient programme for ambulatory cardiac rehabilitation. This programme involves patients who have had myocardial infarction and heart failure and over 200 patients have been recruited for intensive exercise training and secondary prevention. In addition, it organises primary risk factor prevention service for cardiac diseases, involving regular public lectures, risk factor screening, lipid lowering, relaxation and weight reduction classes.

Services introduced to Hong Kong.

Through concerted efforts of cardiologists in the Division working in all three hospitals, the following services were introduced to Hong Kong by the Division:

Procedure/Service	Year
Echocardiography and exercise testing	1976
Electrophysiology study	1980
Dual chamber pacing	1982
PTCA	1984
Balloon valvuloplasty	1988
DC catheter ablation	1988

Radiofrequency catheter ablation	1990
Antitachycardia pacing	1990
Single lead VDD/R pacing	1991
Automatic implantable cardioverter defibrillator	1992
Comprehensive cardiac rehabilitation programme	1992-1993
Laser angioplasty	1993
Transvenous atrial defibrillation	1993

The Grantham Hospital

Over the past 13 years, TGH has established a solid reputation in cardiac patient care and has served as the major referral cardiac centre for the management of heart diseases in Hong Kong, providing 24 hours service for emergency cardiac catheterization, cardiac intervention and cardiac surgery. It has worked in close collaboration with the cardiac surgical unit whose patients are under the combined care of the cardiac surgical and medical teams, and heart transplantation in Hong Kong is one of the achievements of the combined efforts of the cardiac teams at TGH and the various supporting medical units of The University of Hong Kong headed by Prof. T.K. Chan. Referral from all over Hong Kong and Macau are made by telephone, fax or letter for both emergency transfers and elective outpatient appointments for cardiovascular disease.

The current clinical service of the cardiac medical unit at TGH is summarized as follows:

1. A total of 120 beds including 47 cardiac medical (with telemetry facilities), 8 coronary care unit, 9 day cardiac, and 8 cardiac convalescence, 40 combined cardiac and 8 intensive care unit beds. The total admission of the unit in recent years is in the region of 2,500 cases annually.

2. A total of 9 outpatient clinics including 2 general cardiac, 2 valvular/anticoagulant, 1 percutaneous transluminal coronary angioplasty, 1 pacemaker, 1 arrthythmia, 1 heart failure and 1 risk factor modification clinic. The total no. of outpatients is currently around 35,000 per year of which approximately 1,000 are new cases.

3. Non-invasive laboratory services including 24-hour Holter monitoring, exercise treadmill test, 24-hour ambulatory BP monitoring, late potential analysis and echocardiography service including transoesophageal echocardiography for both in- and out-patients.

4. Cardiac catheterization and therapeutic interventions:
   The adult cardiac medical unit has been sharing 1 cardiac cath. laboratory with the paediatric unit over the past 15 years. With increasing experience of the medical & paramedical staffs working in the cath. lab., the number of cardiac catheterization procedures for the adult unit alone has increased from 400 cases in 1985 to approximately 700 cases in 1990 and saturated at around 1,100 cases per year over the past 3 years. In keeping with the rapid advances in cardiology and cardiac technology in recent years, the unit has achieved a high standard in the field of therapeutic cardiac cath. interventions in our cardiac cath. laboratory; keeping up with the most updated modalities in the treatment of various heart disease such as radiofrequency ablation for arrhythmias, percutaneous balloon pericardiotomy, non-thoracotomy automatic implantable cardiac defibrillator insertion, device occlusion for patent ductus arteriosus and atrial septal defect, percutaneous balloon valvuloplasties for pulmonary, aortic, tricuspid and mitral valvular stenosis and in particular a varieties of devices for treatment of ischaemic heart disease such as PTCA, stenting (PTCS), rotablation, artherectomy (DCA) and laser angioplasty (ELCA). The introduction of intravascular ultrasound into our cath. lab. in recent years has also helped to improve the results of coronary interventions. The proportion of therapeutic cardiac cath. intervention out of the total number of cardiac cath. procedures has rapidly increased from 10% in 1988 to 45% in 1994.

5. Cardiac Rehabilitation
   Postoperative patients in Gratham Hospital have received cardiac rehabilitation since the beginning of cardiac surgery in the 70s.

Proper program planning for Phase I Cardiac Rehab. was initiated in February 1993 for post-surgical, post-PTCA and post-myocardial intarction patients, and patients with chronic stable angina, cardiomyopathy or congestive heart failure. A Cardiac Rehabilitation Centre was officially established in September 1994, followed by Phase 2 and 3 programmes.

EDUCATION

Queen Mary Hospital

Undergraduate teaching is largely undertaken by our staff with the assistance of honorary lecturers. The core curriculum is in place and most of the teaching involves lectures, clinics and bedside sessions.

The Division participates in the basic physician training programme and the cardiology training programme of the Hong Kong College of Physicians. Postgraduate training is given in ward rounds, weekly conferences and hands on procedural sessions. A regular core curriculum programme takes postgraduate physicians through basic cardiology management. Education of the patients and the community is carried out by information leaflets on major cardiovascular diseases such as coronary artery disease and arrhythmia. Staff members of Division are advisers in various public health exhibitions, health education bodies and the Hong Kong College of Cardiology.

The Division runs a structured 3-year fellowship training programme for cardiology trainees after their 3 years basic internal medicine training. Trainees must cover clinical cardiology, non-invasive cardiology and a minimum number of invasive cardiac procedures and research activities. A fourth year fellowship in angioplasty or electrophysiology is in place. In addition, postgraduates from China and overseas regularly join the Division for clinical training, research and other academic exchange.

Grantham Hospital

1. Undergraduate teaching in cardiology for HKU medical students is assisted by our staff at the Grantham Hospital with particular emphasis on common cardiac diseases seen in Hong Kong. Regular lectures in cardiology are given to both medical and paramedical staff. In addition, through networking with other hospitals, postgraduate staff dedicated to cardiology are rotated to our hospital for better exposure to care of pre- and postoperative cardiac patients and interventional cardiac skills. Renowned cardiologists from overseas were impressed after their visits to the hospital and have established friendly links for exchanges in cardiology training.

2. Community activities. Our unit is actively participating in organizing activities for the purpose of promoting cardiac health in the community. An exhibition entitled "fighting against coronary artery disease" was successfully held in the Hong Kong Convention Center in early 1995.

RESEARCH

Research is the only way for advancement in medicine, and as the list of publication testifies, the Division of Cardiology has been active in quality research in many cardiovascular disciplines.

Heart failure

Systematic study of various drugs in the treatment of heart failure began in the early 1980's, and the department has experimented with early vasodilators then available. After the use of angiotension converting enzyme inhibitors has been established, there is worldwide interest in the use of beta blockers in heart failure, especially those with vasodilating properties. The use of a combined a- and ß- blocking agent labetalol in dilated cardiomyopathy was studied, and the favourable result was subsequently confirmed in other studies. The level of G-protein in dilated cardiomyopathy was also reported.

Coronary artery disease

The epidemiology of AMI is well recognised in Caucasian population but it is controversial

whether this could be applied to the predominantly Chinese population in Hong Kong. The epidemiology and in-hospital course of AMI admitted to our Division at QMH before the thrombolytic era were prospectively studied for the in-hospital course and coronary risk factors. Coronary anatomy was studied in Chinese patients with ischaemic heart disease. The role of residual artery stenosis on infarct remodelling has been reported. This shows that a "patent" infarct related artery prevents infarct expansion. The Division has investigated the use of different lipid lowering therapy and the effect of this treatment in coronary vasomotion in patients without angiographically abnormal arteries, suggesting the role of aggressive lowering of lipid level in these individuals. The local cholesterol level has been defined by an epidemiological survey, which showed that the local lipid level was similar to the age-matched levels in the States. An epidemiological survey of ischaemic heart disease in the elderly has been completed. Newer forms of laser angioplasty and transmyocardial laser revascularisation were also experimented. Alternative anti-thrombotic regimen for coronary stenting was also investigated.

Valvular heart disease

This was the most prevalent disease in the early 1980's and technique in performing cardiac catheterisation in patients with aortic valve stenosisand the justification of cardiac catheterisation before valvular replacement were investigated. Non-invasive echocardiographic assessment of patient with different kinds of artificial valves, were also discussed. The prevalence of mitral valve prolapse in Chinese and its associated skeletal abnormalities were reviewed. Management of pregnancy in patients with prosthetic heart valve is an important issue. The incidence and the type of anticoagulant used during pregnancy were studied, and the optimal regiments for anticoagulation were published. In addition, the inadequate vole of antiplatelet agents alone on patients with prosthetic valves was reported. A guideline for antibiotic prophylaxis and treatment of infective endocarditis was published. Balloon mitral valvuloplasty was extensively practised and its long term efficacy evaluated. Its role in pregnant patient with acute cardiac decompensation was documented.

Cyanotic congenital heart disease

Patients with Eisenmenger complex have a poor prognosis. A study was carried out to assess the effect of oral nifedipine in relieving the reversible component of pulmonary hypertension. The value of cross sectional echocardiography in this disorder was discussed. Congenital diseases of the aorta and their management were reported.

Cardiac arrhythmias

The Division has engaged in arrhythmia research since 1980's, when evaluation of antiarrhythmic drug therapy especially the newly available class 1c agents was carried out. Chinese herbs containing aconitine were found to be cardiotoxic (arrhythmogenic and cardio-depressive). In conjunction with the Chinese Herbs Research Centre of the Chinese University of Hong Kong, this risk was pointed out, leading to public awareness and preventive measures. The interesting bidirectional ventricular tachycardia due to herb ingestion was likely due to enhanced automaticity. Transcatheter radiofrequency treatment predominates arrhythmia research in the 1990's. Radiofrequency ablation produces well-circumscribed lesions and was used to characterise the anatomical-pathological disposition of accessory pathway. "Complex" left-sided pathways were identified. It was also found that radiofrequency ablation is not only effective, but also enhances exercise capacity and improves quality of life. Trans-septal technique was also evaluated as an alternative approach for left sided accessory pathways.

Fascicular tachycardia is an idiopathic ventricular tachycardia in patients without structural heart disease. The electrophysiological mechanism and pharmacological response have been studied as well as the usefulness of radiofrequency ablation treatment. Thanks to a grant from the Royal Hong Kong Jockey Club and administered by the Hong Kong Heart Foundation, the implantable ventricular cardioverter defibrillator was introduced for life-threatening ventricular arrhythmias. This work was achieved with the joint

efforts of Queen Elizabeth Hospital and the Cardiothoracic Unit of TGH.

Atrial fibrillation is the most prevalent sustained arrhythmia in the population, and a recent survey in the Division in 1500 active elderly subjects (in conjunction with the Society of the Aged and the Rotary Club) showed a prevalence of 1.3% in the population. Reviewing the in-hospital presentation and management of 291 cases showed that atrial fibrillation occurred predominantly in elderly female, and use of antithrombotic treatment was suboptimal. The class 1c agent flecainide was shown to be more effective in maintaining sinus rhythm and in reducing the ventricular rate during a recurrence than quinidine. A beta-blocker with additional alpha-blocking action was shown not to adversely affect the resting and exercise cardiac output in patients with atrial fibrillation. The haemodynamics of induced atrial fibrillation has been published, which unlike the situation in cardioverted chronic atrial fibrillation, was associated with mild haemodynamic changes.

A novel "intercalated pacing" method for rapid rate control in atrial fibrillation has been published, as well as the use of sensors to control the pacemaker response during atrial fibrillation (automatic rate and mode switching). Restoration of sinus rhythm is the ideal goal in the treatment of atrial fibrillation, although it is not possible to do this with drug alone in every patient. The feasibility of using temporary intravenous electrodes in converting atrial fibrillation to sinus rhythm, using biphasic shocks in the atria, have been tested, paving the way for an implantable atrial defibrillator.

Cardiac Pacing

Rate adaptive pacemakers vary the heart rate by an implantable sensor to detect physiological changes, and the relative merits of sensors have been extensively studied. These studies show that a "fast" responding sensor is not proportional in rate response, whereas a "proportional" sensor may react slowly. To optimise the performance of rate adaptive sensors, it is possible to combine two or more sensors in a single system. The clinical benefits of one dual sensor system was assessed using oxygen uptake kinetics study, and the possibility of using one sensor to avoid false reactions of another sensor was addressed.

Since 1990, a new pacing mode, known as dual chamber rate adaptive mode (DDDR), becomes available. This mode combines the advantage of having both an implantable sensor and atrioventricular synchrony. The clinical role and performance of three types of DDDR pacemakers, and the haemodynamic advantage of additional atrioventricular synchrony has been reported. Methods for optimising the management of patients with bradycardias have been investigated. The clinical role of the new single lead VDD/R mode has been studied, and the ways for optimising atrial sensing compared. An oxygen saturation sensor implanted for monitoring cardiopulmonary function has been tested.

Systemic diseases and the heart

A unique advantage of the Division is its good clinical and research associations with other medical divisions in the department. Extensive collaborative research in various areas in haematology, rheumatology and endocrinology have been published. For example, the subclinical diastolic cardiac dysfunction in various rheumatoid diseases have been documented, as well as the role of echocardiography in patients with haematological diseases.

FUTURE DIRECTIONS

Increased interventional services

The Division aims to introduce 24-hour emergency interventional services during 1995 to cater for primary PTCA for patients with AMI who are not eligible for thrombolytic therapy. This service will also cater for patients with unstable ischaemic syndromes, and patients with cardiogenic shock associated with AMI. The present volume of arrhythmia and pacing management services will be expanded. In recent years, coronary artery disease has become the leading cause of mortality in Hong Kong. The Division has, and continue to organise both local and international meetings in promoting

knowledge of heart disease amongst the medical professions. Members also give regular public lectures in cardiac disease to doctors and allied professionals. Additional Cardiac Catheterisation Laboratories in QMH and TGH are under planning.

Cardiothoracic surgery

There is currently no cardiothoracic services available at QMH, despite its attachment to an Accident & Emergency Department. Although our elective cases are handled expertly by colleagues at TGH, there is a need for emergency cardiothoroaic support for cases of chest trauma, aortic dissectionand complications from cardiac interventional procedures. Together with the Department of Surgery, the Division of Cardiology has formed a working group aiming to establish an emergency cardiothoracic surgical service at QMH.

Apart from development in clinical service, the Division will further its links with major cardiac centres in China and the rest of the world, and to be one of the major leading forces in academic cardiology development. Included in this development are pioneering research in pacing, arrhythmia, coronary intervention, as well as population-based cardiac monitoring and treatment programmes. Cooperative research in molecular cardiology and cardiovascular pharmacology is underway. Newer revascularisation technique using transmyocardial laser will be investigated at TGH in conjunction with Cardiothoracic Unit.

Day care and cardiac rehabilitation services

Day care for cardiac patients undergoing procedure is under planning in TGH. The cardiac rehabilitation services will be extended to include preventive cardiology care in TGH and TWH.

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† *Publications produced by staff whilst attached to or visiting other centres*

‡ *Publications produced by staff while employed at other centres before joining the Department*

* *Publications in non-indexed journals*

C.P. Lau, K.L. Cheung, W.H. Chow and David S.W. Ho

DIVISION OF CLINICAL PHARMACOLOGY

Clinical Pharmacology, a discipline complementary to, yet distinct from basic pharmacology, was introduced into the medical faculty of HKU in 1982 as part of the Department of Medicine. Its staff currently consists of:

Prof. Cyrus R. Kumana, *BSc, MBBS, FRCPC, FRCP, FHKAM (Medicine)*
Professor and Chief of Division

Dr. Bernard M.Y. Cheung, *MA, MB, BChir, PhD (Cantab), MRCP(UK)*
Lecturer

Mrs. Maybelle Kou, *SRN, SCM, HV, M Phil*
Senior research assistant/technician

The Division of Clinical Pharmacology's continuing achievements and longterm overall objectives include the following:-

Heightening awareness of Clinical Pharmacology and the importance of what it can offer clinicians: Drug treatment is frequently the final common pathway of medical practice, therefore it deserves at least as much forethought, effort and attention as clinical and investigational diagnostic skills. Whereas technological advances have generally made the diagnostic aspects of clinical medicine easier, modern therapeutics has become much more complex due to the wealth of ever increasing knowledge and confusion about whether or not and how individual drugs should be used. Today's prescriber is confronted with a vast array of similar and dissimilar pharmacological (and sometimes non-pharmacological) therapeutic strategies. Frequently a choice has to be made between several 'me too' drugs belonging to the same class. It therefore becomes essential to develop a sensible, practical and scientific approach towards coping with the various claims and counter claims concerning the respective benefits and adverse effects of each option.

Continuous refinement, review and updating of educational activity, whilst establishing only a relatively limited number of formal lectures: Being aware of the pressure on medical and other allied students and the information explosion they are faced with, there has been a deliberate attempt to: a) reduce the emphasis on the assimilation of unnecessary factual details whilst promoting greater awareness of principles and b) advocate the application of such principles to individual issues (and cases) by encouraging students to seek out and refer to appropriate resources.

The efficient and harmonious development of Clinical Pharmacology within the Faculty of Medicine: The need for utmost cooperation with clinical departments (especially individual clinicians within the Department of Medicine), the Department of Pharmacology and the Clinical Biochemistry Unit has been fully recognized and actively nurtured. In order to promote close links with other disciplines, joint research projects, educational activities and other contacts have been established and continue to grow. By these means, Clinical Pharmacology can confidently win the respect and appreciation of other specialties, can become fully integrated in the work of the faculty and make a significant contribution to its achievements.

Advocacy of rational (cost-effective) drug prescribing: This is the ultimate aim of Clinical Pharmacology and must also be among the most important priorities of all health care workers, as well as society at large. Apart from appropriate education directed at various undergraduates and postgraduates, patients and the general public, there have been a number of concerted initiatives to facilitate certain patterns of prescribing by hospital doctors. With ever greater awareness of health care costs and the need for financial responsibility and accountability, this type of activity is inevitably set to increase.

EDUCATION

A comprehensive educational framework in Clinical Pharmacology and Therapeutics for both medical students and staff has been organized. There has also been input into Clinical Pharmacology teaching for dental students as well

as those studying for various other degrees and diplomas (B.Sc. in Nursing, Certificate of Medical Science, Master of Pharmacy). Ensuing from such efforts perhaps, an awareness of Clinical Pharmacology and its importance to the scientific practice of therapeutics has begun to emerge, where previously there had been very little insight. Although this trend is evident both within the Faculty of Medicine and amongst practitioners in the community, much greater awareness needs to be fostered. The most important contributions and commitments to Clinical Pharmacology education can be summarized as follows:

- A course of lectures in Clinical Pharmacology and Therapeutics (held annually) organized for 4th year M.B. students.
- Conduct of a series of small group seminars/ tutorials in Clinical Pharmacology for final year M.B. student (during each clinical clerkship in medicine).
- More advanced teaching in Clinical Pharmacology and Therapeutics as part of the newly established protected-time postgraduate physician training programme for the Queen Mary Hospital cluster.
- Organization and presentation of Therapeutic Conferences attended by junior and senior staff in the Department of Medicine (and other departments), final year M.B. students, and by other doctors practicing within and outside Queen Mary Hospital.
- Organization and supervision of an experiment in Clinical Pharmacology. (Pharmacology Practical course for 2nd year M.B. students).
- Supervision of postgraduate students; two have read and one is currently reading for an MPhil and another has applied to read for a PhD.
- Publication of book reviews and forewords, as well as educational articles in local journals and bulletins - on important aspects of Clinical Pharmacology and Therapeutics (see list of publications).
- Lecturing by invitation on various aspects of Clinical Pharmacology - to a variety of different organizations, viz.: general practitioners, dental practitioners, clinical chemists, pharmacists, pharmaceutical representatives, medical colleges in the Republic of China.
- Moderation or chairmanship at seminars, conferences and refresher courses for specialists and general practitioners.
- Provision of in-depth and detailed drug information. This has been achieved through books, journals and access to other resources. The Iowa Drug Information System (IDIS) involving microfiche, was introduced as a tool of Clinical Pharmacology for the faculty library. More recently the Department of Medicine has acquired direct computerized access to international drug data bases.

RESEARCH

Clinical Pharmacology in its broadest sense, is the scientific study of therapeutic and non-therapeutic drug use (and abuse) in humans. Special attention and effort have been directed towards aspects deemed to be particularly relevant or unique to the local population. Such aspects include:- inter-ethnic differences in drug dose response relationships, difficulties and unique features of drug prescribing, drug dispensing and drug delivery to local patients, and the extent of patient cooperation and understanding about the medicines they take. Accordingly, the following special interests and research projects have evolved:

1. Search for clinically significant peculiarities of drug usage and prescribing in Hong Kong, viz.:

a) Discovery of very widespread community use of chloramphenicol but no apparent link with aplastic anaemia.

b) A high prevalence of dental discoloration has been linked to excessive exposure of local children to tetracyclines (liquid formulations). Since our findings were publicized, such exposure has diminished dramatically.

c) Local hospital and non-hospital sales of parenteral and oral cephalosporins and parenteral

and topical aminoglycosides were found to be distinctly different from corresponding sales in western countries.

d) Anti-asthmatic drug utilisation (quantitative and qualitative aspects - including assessment of inhalational efficiency of various devices) has been reviewed in relation to local asthma mortality. Further studies along this line are now underway.

e) Abuse of therapeutic digoxin level monitoring was revealed and corrective measures implemented.

f) Targeted drug audits conducted in Hong Kong hospitals - with special reference to cost-effective prescribing (expensive antibiotics, inappropriate albumin infusion, oxygen administration devices, other drugs) coupled with feedback to facilitate more cost-effective usage.

2. Search for possible clinically relevant inter-ethnic pharmacokinetic differences, revealed that for certain fat soluble drugs (viz. diazepam), the relatively lean Chinese had smaller distribution volumes, whilst acetylator phenotypes among local women were unrelated to the high incidence of systemic lupus erythematosus.

3. Provision of drug information to patients; supplying information sheets without active involvement of patients was shown to be of limited benefit.

4. Exposure to hepatotoxic pyrrolizidine alkaloids through the prevailing popularity of traditional folk (herbal) medicines in the community, has been thoroughly investigated following a small outbreak of such poisoning.

5. Involvement in controversies regarding the use in Hong Kong of drugs widely regarded as having unacceptable adverse effects (e.g. dipyrone), and the steps being taken by local drug regulatory authorities to control their use or deregister them.

6. Active participation in the design, organization and conduct of randomized clinical drug trials pertinent to Hong Kong, viz.:

a) Therapeutic and prophylactic studies involving antimicrobials,

b) IV glycerol for acute strokes.

7. Involvement with drug administration and dispensing procedures: This entailed introduction of a totally new Drug Order Form, which included a system for recording drug orders executed by nurses. A modified version is now used in all wards of the Queen Mary Hospital and is even being adapted for use in hospitals run by the Hong Kong Hospital Authority. Together with other parties, arguments presented to various official committees and the public has led to the territory-wide adoption of universal, computerized drug container labelling. There has also been active involvement in education and quality assurance measures to monitor and minimize medication incidents. A coding system for identifying tablets and capsules is also being advocated.

8. Evaluation (in local patients), of bioavailability differences between brand name medicines and generic substitutes used in Hong Kong.

FUTURE DIRECTIONS

The division of Clinical Pharmacology is poised to undergo expansion in the near future. A lecturer and a postgraduate student have recently joined and other postgraduates are applying to join. The division is also acquiring a small new laboratory dedicated to Clinical Pharmacology research. A number of important and exciting projects involving collaborative research are currently being initiated in the following areas:-

Cardiovascular Disease: Investigation of genes affecting the development of cardiovascular disorders (hypertension, coronary artery disease, ventricular hypertrophy) is underway, with special reference to angiotensin converting enzyme (ACE) genotypes and involves searching for various sensitive biological markers including brain natriuretic peptide (BNP). A prospective, double-blind, randomized, placebo-controlled, cross-over trial of digoxin treatment (not withdrawal) for heart failure patients in

sinus rhythm who are already receiving conventional treatment is being planned. **Vasoactive Peptides**: Many of these including atrial natriuretic peptide (ANP), BNP and bradykinin play a role in the control of blood pressure and modulate the action of cardiovascular drugs. Their physiological and pathophysiological influences in hypertension, vaso-vagal syncope and heart failure are being investigated. **Chloramphenicol**: Despite very large scale utilisation of this drug in the local community, a high incidence of aplastic anaemia is not encountered in Hong Kong. We have postulated that there may be inter-ethnic differences in the way the drug is metabolized; certain myelotoxic metabolites being produced only in white Caucasians. This possibility is currently being studied *in vitro*, by comparing the metabolic products formed after chloramphenicol is incubated with bone marrow cells from healthy Chinese and Caucasians. **Drug Metabolism after Hepatectomy**: Since a large number of partial hepatectomies are performed at Queen Mary Hospital (due to the high incidence of hepatic carcinoma), it is planned to investigate how this affects the metabolism of drugs. The impact on the short-term and long-term pharmacokinetics of drugs known to be subject to "high" and "low" levels of hepatic extraction will be studied. **Drug Utilization Research and Audits**: This work will entail extension of ongoing iterative studies targeted at specific aspects of drug prescribing in the territory.

Many of the above mentioned investigations are being undertaken as joint projects with other Divisions in the Department of Medicine, the Departments of Surgery, Anaesthesia and Pathology, the Department of Pharmacy at Queen Mary Hospital, as well as the Hong Kong Hospital Authority. The work on chloramphenicol is being conducted in conjunction with the Karim Centre for Meningitis Research, Royal Postgraduate Medical School Institute of Obstetrics and Gynaecology, London and the studies entailing vasoactive peptides with the Clinical Pharmacology Unit at the University of Cambridge. It is also anticipated that research and teaching links with the Department of Pharmacology will be strengthened, particularly after the arrival of the new Professor, whose primary interest is in basic pharmacology in relation to cardiovascular diseases.

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Cyrus R. Kumana and Bernard M.Y. Cheung

DIVISION OF ENDOCRINOLOGY

Endocrinology has long been an established discipline in the Department of Medicine. Currently the team consists of 4 full-time and 3 part-time academic staff, 6 (4 full-time; 2 part-time) post-membership trainees, 3 post-graduate students, 3 technical staff and 4 research assistants.

Academic staff who have contributed to the achievements of the division during the past decade include the following:-

Current members

Prof. Rosie T.T. Young, *OBE, MD, DSc(Hon), FRCP, FRCP(E), FRCP(G),FRACP, FHKCP FHKAM(Medicine), JP*
Professor

Dr. Karen S.L. Lam, *MD, FRCP, FRCP(E), FHKCP, FHKAM(Medicine)*
Reader and Chief of Division

Dr. Annie W.C. Kung, *MD, FRCP(E), FHKCP, FHKAM(Medicine)*
Senior Lecturer

Dr. Kathryn C.B. Tan, *MD, MRCP(UK)*
Lecturer

Trainees

Dr. Nelson M.S. Wat, *MBBS, MRCP(UK)*
Medical Officer

Dr. T.P. Ip, *MBBS, MRCP(UK)*
Medical Officer

Dr. W.S. Chow, *MBBS, MRCP(UK)*
Medical Officer

Dr. M.H. Ho, *MBBS MRCP(UK)*
Medical Officer

Past members

Prof. Christina C.L. Wang, *MD FRACP, FRCP(G) FHKCP, FHKAM (Medicine)*

Dr. John T.C. Ma, *MA(Oxon), MBBS(Lond) FRCP(E), FHKCP, FHKAM(Medicine)*

Dr. K.K. Pun, *MD, PhD, FRCP(E), FHKCP, FHKAM(Medicine)*

CLINICAL SERVICE

The Endocrine Division is the major referral centre for endocrine disorders in Hong Kong. An in-patient metabolic ward and a hormone laboratory, established in the early 1960's, have provided facilities for patient management, opportunities for training and stimulus for research. The availability of expertise in endocrine imaging, pituitary and endocrine surgery, and an up-dated clinical biochemistry service, also help to establish within the Queen Mary Hospital a centre of excellence in endocrinology. Ambulatory service in diabetes was started in 1989 and the K.K. Leung Diabetes Centre, first of its kind in Hong Kong, has provided comprehensive service on diabetes care since Jan. 1994. The division also offers outpatient service in 6 clinics including general endocrine, thyroid, diabetes (general, home monitoring and gestational) and male infertility clinics. The last two clinics are conducted in conjunction with the Department of Obstetrics and Gynaecology.

EDUCATION

In addition to undergraduate teaching of medical and dental students, the division also provides post-graduate education on basic and clinical endocrinology. This includes the supervision of PhD and M. Phil. students and the training of endocrine fellows from hospitals in Hong Kong, Macau, China, Korea, Philippines, Australia and the U.S.A. These fellows and students have contributed to the research of the division. The weekly Wednesday journal and research meetings are attended by endocrine teachers and trainees from the Departments of Medicine, Paediatrics, Clinical Biochemistry and Physiology. The weekly Friday endocrine seminars involve the active participation, not only of staff of this hospital (endocrine physicians, paediatricians and gynaecologists, radiologists, radiotherapists and neurosurgeons), but also endocrinologists and endocrine trainees from various hospitals as well as the private sector.

The Division initiated and founded the Society for the Study of Endocrinology, Metabolism and Reproduction together with other members of the University. Through this local endocrine society the staff participated actively in open clinical meetings held both for the general practitioners and specialists on diverse subjects such as diabetes mellitus, thyroid disorders, growth problems and reproductive dysfunction. In 1986 members of the division organised and actively participated in a Postgraduate Course in Clinical Endocrinology held under the auspices of the Society for the Study of Endocrinology, Metabolism and Reproduction. This course was participated by clinicians from Australia, China, Malaysia, Philippines, Taiwan, Singapore, United Kingdom and United States in addition to Hong Kong. Members of the division have also been regularly invited to teach at post-graduate courses in endocrinology and reproductive medicine both in China and South East Asia.

Not only does the division serve as the major training centre for endocrinologists in the region, it has also provided training for diabetes nurses from various hospitals in Hong Kong and China. Since the establishment of the K.K. Leung Diabetes Centre, up-date seminars on diabetes management for general practitioners, nurses and other health professionals have been organised at 2-monthly intervals. Health exhibitions and seminars on diabetes for the lay public have also been conducted at the Centre to promote diabetes education and awareness in Hong Kong.

RESEARCH

Endocrine research in the Department of Medicine, both clinical and basic, has undergone considerable expansion and diversification since the 1980's. Research directions include diabetes and carbohydrate metabolism, thyroid disorders, neuroendocrinology, calcium homeostasis and metabolic bone diseases, reproductive endocrinology and infertility. In the recent exercise, three RGC grants have been awarded to the division. The following is a brief description of the contributions of the Endocrine Division.

Diabetes mellitus and carbohydrate metabolism

Research on the characterization of diabetes mellitus and its complications in Hong Kong Chinese has continued, and studies on the molecular genetics of diabetes have been initiated. We were the first group to report on the association of HLA DR3 DRw9 with IDDM (insulin-dependent diabetes) in Chinese and the association of aldose reductase gene polymorphism with diabetic retinopathy, and describe a MODY family with glucose kinase gene mutation in Chinese. In addition to studies on the prevalence and incidence of vascular complications in diabetes (part of the WHO multicentre study), we have also reported on the high incidence of undiagnosed diabetes among Chinese patients with ischaemic stroke and defined the factors predicting the persistence of glucose intolerance in Chinese women with gestational diabetes. Furthermore, our recent studies on diabetic nephropathy have demonstrated interesting atherogenic changes in serum lipids in microalbuminuric NIDDM patients although lipoprotein(a) [Lp(a)], a recently established atherosclerotic risk factor, remains unchanged. We have also found that CETP, cholesteryl ester transfer protein, is increased in NIDDM and further rises with development of microalbuminuria. Our recent prospective study provided the first clinical evidence for a possible beneficial effect of cholesterol lowering therapy on the progression of nephropathy in NIDDM. Active research on lipid metabolism in diabetes is continuing and includes the genotypic and phenotypic expression of Lp(a), studies on CETP genotype and lipid subfractions, and the inter-relationship between lipids and prothrombotic/ fibrinolytic factors in diabetic nephropathy.

The earlier description of hypoglycaemia associated with hepatocellular carcinoma was followed by studies on the mechanism causing the hypoglycaemia as well as abnormalities in carbohydrate metabolism in post-necrotic cirrhosis of the liver. We also reported the occurrence of hypoglycaemia in patients with insulin autoimmunity. Studies of hypoglycaemia occurring in uraemic patients examined the changes in insulin, C-peptide and cyclic

adenosine monophosphate levels as well as other metabolic substrates in these patients. These studies led to the finding of the important role of ß adrenergic blockers in the generation of hypoglycaemia in haemodialysis patients.

Thyroid diseases

The department was well known for its earlier studies on the clinical features of thyrotoxic periodic paralysis. Changes in erythrocyte sodium pump activities were observed and these shed some light on the pathogenesis of this common complication of thyrotoxicosis in the Orientals. The common occurrence of hypokalaemic periodic paralysis in Chinese was also reported in association with primary hyperaldosteronism, renal tubular acidosis and chronic ingestion of gossypol for contraception. The role of immunoglobulins in the pathogenesis of autoimmune thyroid diseases has been explored. Studies on the changes of TSH receptor antibody activities in patients treated with antithyroid drugs, radioactive iodine, subtotal thyroidectomy, neonatal thyrotoxicosis and congenital hypothyroidism have been reported. We also documented the association of HLA BW46 in thyrotoxicosis and DRw9 in Hasimoto's thyroiditis in Southern Chinese. To understand the molecular basis of autoimmune thyroid disease, a human thyroid cell culture model was described and the effects of TSH receptor antibodies and various cytokines on thyroglobulin and thyroid peroxidase gene transcription were studied. Furthermore, the in vivo and in vitro effects of interferon gamma and interleukin - 1ß on thyroid function and autoantibodies induction have been reported. Research on the pathogenesis of autoimmune thyroid disease is continuing, with the use of a transgenic mouse model.

Clinical studies on the efficacy of radioactive iodine in the treatment of thyrotoxicosis were conducted. We have documented the incidence and factors affecting hypothyroidism after radioactive iodine, the incidence of opthalmopathy and the adjunctive effect of antithyroid drugs on radioactive iodine therapy. In addition, we have reported on the regulation of carbohydrate and lipoprotein metabolism in hyper- and hypothyroidism, and the changes in plasma epidermal growth factor in thyroid disorders.

In 1989, Prof. R. Yeung was awarded the Daiichi-Mallinckrodt prize at the 4th Asia and Oceania Thyroid Association Meeting in 1989 in Seoul for her contribution to the field of thyroid diseases in this region.

Neuroendocrinology

Our clinical studies reported the usefulness of dopamine agonists for the treatment of hyperprolactinaemia and acromegaly. We have also reconfirmed the value of radiotherapy in acromegaly. More recently we have showed the effectiveness of a long acting somatostatin analogue in the treatment of acromegaly. In collaboration with the Department of Paediatrics we have reported on the long-term use of pulsatile growth hormone releasing hormone therapy in children with growth hormone deficiency, and the growth-promoting and metabolic effects of recombinant growth hormone therapy in children with ß-Thalassaemia major. We have also shown that circulating Lp(a) level is increased in patients with acromegaly and correlates with serum growth hormone level, suggesting a possible regulatory role of growth hormone in Lp(a) synthesis or metabolism.

Extensive studies were conducted on the effects of cranial irradiation on hypothalamic-pituitary function of patients with nasopharyngeal carcinoma, a very common malignancy among Southern Chinese with good cure rates following radiotherapy. We were the first to determine from a 5-year prospective study the high incidence of post-irradiation hypopituitarism in these patients and demonstrated from serial hormonal responses to hypothalamic releasing hormones that their hypopituitarism evolves from hypothalamic damage to secondary anterior pituitary dysfunction. Risk factors predisposing to post-irradiation endocrine dysfunction were identified and formed the basis of current strategies to reduce such complications. We also reported on the high prevalence of undiagnosed growth hormone and gonadotrophin deficiencies in survivors of childhood tuberculous meningitis, a common disease in developing countries, and

defined the pathogenesis of such deficiencies using MRI and updated hypothalamic function tests.

More recently, we have been actively engaged in basic research on the neuroendocrine regulation of prolactin and growth hormone secretion. We demonstrated for the first time that the gene for vasoactive intestinal peptide (VIP), a prolactin releasing hormone, is expressed in the anterior pituitary, that this is regulated by thyroid hormone, oestrogen, glucocorticoid and sexual dimorphism, and that VIP acts as a physiological paracrine regulator of prolactin secretion. We also reported on the novel finding that the VIP gene can be expressed as two different mRNA species, as a result of the utilization of alternative initiation sites for polyadenylation. On the neuroendocrine regulation of growth hormone secretion, we have demonstrated that chronic high dose dexamethasone decreases hypothalamic somatostatin gene expression in the periventricular nucleus and that a similar reduction is seen in hypothyroidism. Our more recent studies suggest that the response of hypothalamic somatostatin gene expression to glucocorticoid therapy is biphasic and dependent on dose and duration. In addition, new findings regarding the hormonal regulation of the genes coding for the receptors of growth hormone releasing factor and somatostatin in the rat anterior pituitary have just been reported. These and on-going studies on GRF expression serve to define the pathogenetic mechanisms of altered prolactin and growth hormone secretion in various endocrine disorders.

Calcium homeostasis and metabolic bone disease

The department has played a major role in evaluating the problem of osteoporosis in Chinese in Hong Kong. We have shown that osteoporosis is common in Southern Chinese and that low intake of calcium in the Chinese diet is an important risk factor for fractures. Furthermore, vitamin D deficiency is an important contributing factor in the pathogenesis of fracture neck of femur. The usefulness of intranasal calcitonin as an analgesic and its bioavailability after intranasal administration were defined. With the availability of a dual energy X-ray bone absorptiometer, studies on bone density measurement have been made possible. We examined patients with primary osteoporosis as well as those with high risks such as postmenopausal women, hypogonadal men, renal failure and corticosteroid therapy. We also reported decreased bone density in hyperthyroidism and with exogenous thyroxine therapy. Interventional studies to prevent primary and secondary osteoporosis are currently ongoing in the department. Furthermore, the department has participated actively to improve community education on the problem of osteoporosis. Basic science studies on the characterization of parathyroid hormone receptors in bone, kidney and skin fibroblasts in health and disease were started in 1987. The occurrence and function of insulin receptors in osteoblasts were examined. Studies on vitamin D and calcium metabolism in association with end-stage renal diseases and hypercalciuria were also reported.

Reproductive endocrinology and male infertility

The department has actively engaged in studies of the gonadal function of patients with thalassaemia and in patients on chemotherapeutic agents and other drugs. The role of bioactive versus immunoreactive follicle stimulating hormone was also examined in patients with various gonadal dysfunction.

In 1984, the male infertility clinic was established in collaboration with the Department of Obstetrics and Gynaecology. This clinic has remained the only one of its kind in Hong Kong and serves as a referral centre in the region. Together with the commitment to provide service, research on various therapeutic regimens for male infertility was reported. The results showed that in controlled studies many of the commonly used approaches (clomiphene and androgens) for infertile men with idiopathic oligospermia were of limited or no value. We also reported the low incidence of sino-pulmonary infections and immunological dysfunction in patients with idiopathic oligospermia.

Recent studies focussed on defining sperm function in normal and infertile men. The goal of these studies was to define parameters that might

be of prognostic and predictive value in discriminating fertile from infertile men. In 1988, under the auspice of the World Health Organisation the department hosted an advanced workshop on sperm function which was attended by participants from eleven countries.

The regulation of steroidogenesis and plasminogen activator production was explored using rat granulosa cells. Studies demonstrated the role of trophic hormones on plasminogen activator production in granulosa cells. Using the same in vitro model, the importance of tissue and urokinase-like plasminogen activators and their inhibitors in ovulation was reported.

Other endocrine disorders

As a referral centre for endocrine disorders in Hong Kong, we have the opportunity to observe, study and treat a large variety of patients with endocrine disorders. Our retrospective studies on the presentation and management of primary hyperaldosteronism, phaeochromocytoma, primary hyperparathyroidism, glucagoma and insulinoma in Hong Kong Chinese have contributed to the characterization of endocrine diseases in the region.

Acknowledgements

These achievements of the Endocrine Division have been rendered possible through the continuous efforts of the endocrinologists, past and present; the capable and conscientious technicians and research assistants; the dedicated nurses of the Metabolic Ward and Diabetes Centre, the fellows and registrars who came and left; and, last but not the least, the encouragement of our colleagues in the Department of Medicine led by Prof. D. Todd and Prof. T.K. Chan.

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† *Publications produced by staff whilst attached to or visiting other centres*

‡ *Publications produced by staff while employed at other centres before joining the Department*

* *Publication in non-indexed journals*

Karen S.L. Lam and Annie W.C. Kung

DIVISION OF GASTROENTEROLOGY AND HEPATOLOGY

Hepatology in the Department of Medicine first started in 1948 by the late Prof. AJS McFadzean. In 1963 a Combined Gastrointestinal Service was formed between the Department of Medicine and Department of Surgery. This pioneering approach, which mirrored the Combined Gastrointestinal Unit in Edinburgh, has become a model for many centres in this region, and the Service remains in full operation today. The Division of Gastroenterology and Hepatology of the Department of Medicine was established in 1973. It is currently staffed by:

Professor S.K.Lam, *MD, FRCP, FRCP(E), FRCP(G), FACP, FACG, FRACP, FHKAM(Medicine), FHKCP*
Professor and Chief of Division

Dr. C.L.Lai, *MD, FRCP, FRCP(E), FRACP, FHKAM(Medicine), FHKCP*
Reader

Dr. C.K.Chan, *MBBS, FRCP(E), FHKAM(Medicine), FHKCP*
Consultant in Medicine

Dr. Matthew M.T.Ng, *MBBS, FRCP(E), FHKAM(Medicine), FHKCP*
Consultant in Medicine

Dr. C.K.Ching, *MB ChB, MD, MRCP(UK), FHKAM(Medicine), FHKCP*
Lecturer

Dr. K.C. Lai, *MBBS, MRCP(UK), FHKCP, FHKAM (Medicine)*
Senior Medical Officer

Trainees

Dr. George K.K.Lau, *MBBS, MRCP(UK)*
Medical Officer

Dr. Wayne H.C.Hu, *MB BS, MRCP(UK)*
Medical Officer

Dr. Benjamin C.Y.Wong, *MBBS, MRCP(UK)*
Medical Officer

Past staff

Dr. Anna S.F. Lok *MD, FRCP*

Dr. W.M.Hui, *MD, FRCP(E), FHKAM(Medicine), FHKCP*

Dr. H.T. Chung, *MBBS, MRCP(UK), FRACP*

CLINICAL SERVICE

The inpatient service includes 15 subspecialty beds in the Queen Mary Hospital, and the patients are jointly managed by physicians and surgeons. Consultation services are provided to all departments of the Queen Mary Hospital. The Division is the leading referral centre for gastroenterological and hepatological problems in Hong Kong, and frequently receives consultations from overseas centres.

The outpatient service includes the Medical Gastroenterology and Hepatology Clinic, and the Hepatitis Clinic run by the Division, as well as the Combined Gastrointestinal Clinic run jointly by physicians and surgeons. These clinics are housed at the Sai Ying Pun Polyclinic, about two miles from the Queen Mary Hospital. In 1994, we saw 458 new cases and 3764 follow-up cases at the Medical Gastroenterology and Hepatology Clinics. The annual number of patients seen in the Hepatitis Clinic increased from 1145 in 1985 to 3162 in 1994. Documented peptic ulcer patients are seen at the Peptic Ulcer Clinic at the Queen Mary Hospital. The annual number of patients seen increased from 2175 in 1985 to 2879 in 1994. The Division also runs the Hepatitis Vaccination Clinic, which provides hepatitis B vaccination to the staff of the hospital, undergraduate medical and non-medical students of the University of Hong Kong. Around two to three thousand individuals are vaccinated each year. It also manages the Gastrointestinal Oncology Clinic and the Motility Clinic, the latter targetting specifically patients with various gastrointestinal motility disorders, which represent one of the commonest complaints in medicine.

The Department of Medicine has provided a gastrointestinal endoscopy service for 30 years. The Division pioneered the first Endoscopic Retrograde Cholangiopancreatography (ERCP) service in Hong Kong in 1974, the first sphincterotomy service for the removal of bile duct stones in 1976, and the first biliary stenting service for malignant jaundice in 1978. At

present, the Endoscopy Unit includes two endoscopy suites, one mainly for oesophagogastroduodenoscopy, flexible sigmoidoscopy and colonoscopy, and the other specially designed for Diagnostic and Therapeutic ERCP. It is equipped with the most up-to-date endoscopic equipment, a YAG laser machine for endoscopic laser therapy, electrohydrolic lithrotripter, multipolar electrocoagulator, heater probe, endoscopic ultrsound machine, and other accessories to deal with all aspects of endoscopic procedures known today. In 1994, we performed 4345 diagnostic and therapeutic upper endoscopy, 601 diagnostic and therapeutic colonoscopy and sigmoidoscopy, 225 diagnostic and therapeutic ERCP and 47 endoscopic laser therapy. In 1990, the Division pioneered the first installation in this region of permanent fibre-optic cables to link the Endoscopy Suites with the Department lecture room and the Faculty Underground Lecture Theatre to enable live demonstration of endoscopic procedures to a large audience. Endoscopy results are recorded on a specially designed computer programme that allows storage of information for both patient-care and research purposes.

The Division also provides abdominal ultrasonography for routine and emergency examination of the hepatobiliary system, including ultrasound-guided therapeutic procedures. About 200 such procedures are performed each year. The ultrasound service is recently enhanced by the installation of a state-of-the-art endoscopic ultrasound machine, which is now an established tool for the assessment of gastrointestinal malignancy.

The Division offers the following special investigations in the Simon KY Lee Digestive Disease Laboratory:

- **Gastrointestinal Motility Studies** including 24 hour esophageal pH study, 24 hour esophageal manometry study, stationary esophageal manometry study, anorectal manometry study, radio-opaque marker colonic transit study, simultaneous UES manometry and fluoroscopy study and electrogastrography study.
- Gastric Physiological Studies including gastric acid measurements, and serum gastrin, pepsinogens, somatostatin and EGF assays. Carbon-14 breath test and rapid urease test for detecting Helicobacter pylori was introduced in 1989. Recently, a **Carbon-13 Mass Spectrometer** has become available for ^{13}C-breath test to detect Helicobacter pylori. This non-radioactive, highly accurate investigation is the first of its kind that has been established in Asia.

EDUCATION

Undergraduate teaching activities

Undergraduate teaching is an important part of the activities in gastroenterology and hepatology. A regular series of lectures, clinics and bedside teachings are given. Gastroenterology and Hepatology is also covered during the Integrated Teaching Sessions. For the Final Year students, there is an extra course on the techniques of clinical examination and on the management of emergency situations. This course has been found to be very useful and popular with the students.

The **close-circuit TV** system between the Endsocopy Suites and the lecture theatres has provided the opportunity to demonstrate not only endoscopic procedures but also simple procedures such as liver and bone marrow biopsy, and patient interviews to a large group of students. This unique teaching method is available in only a few medical schools in the world.

Elective students from abroad join the service team and other activities or take part in ongoing research projects. Since 1990 there have been 15 elective students from abroad, 7 from Australia, 3 from U.S.A., 4 from U.K. and one from Germany.

Postgraduate education

The Division undertakes postgraduate research degree trainings. Currently there are two postgraduate students, one registered for M.Phil degree and one for Ph.D degree.

The gastroenterological setup and endoscopy

service has attracted many individually and institutionally based trainees, local and abroad, to join the tightly scheduled training programmes that have been running over the past 20 years. For the past 10 years, the Division supports each year 1-3 Chinese post-graduates, and accepts each year 1-3 overseas trainee, supported by his or her own country, to undergo training in gastroenterology, including diagnostic and therapeutic gastrointestinal endoscopy and ERCP, as well as in basic and clinical research. It also accepts 1-3 local trainess from other hospitals for training in advanced endoscopy.

Continuous postgraduate medical education for all staff of the Division is provided through **Medical Gastroenterology Grand Round, Combined Medical And Surgical Gastroenterology Grand Round, Gastrointestinal Conference** with radiologists and surgeons, gastrointestinal histology conference with pathologists, and Research Meeting - all held on a weekly basis. A Liver Transplant Meeting is held monthly and is attended by staff and trainees in all disciplines involved in this service in the Queen Mary Hospital as well as by gastroenterologists and hepatologists from other regional hospitals.

Members of the Division have contributed to the founding of the **Hong Kong Society of Gastroenterology** and the **Hong Kong Association for the Study of Liver Diseases**, have annually served on their Councils and Committees, and have been actively involved in their activities. Since 1991, the Hong Kong Society of Gastroenterology and its sister organisations in China co-host the biennial **International Conference Of Gastroenterology**, and on each occasion, the Division plays a major role in the organization, and hosts a live close-circuit TV workshop on therapeutic endoscopy and interventional gastrointestinal radiology. In conjunction with the Hong Kong Association for the Study of Liver Diseases, the Division has organised a yearly 3-day symposium on Hepatology.

Regular lectures and training courses are organised with the help from gastroentrologists of other hospitals to members of the **Hong Kong Society of Endoscopy Nursing**, which the Division has played a major role in its establishment. The endoscopy unit is a major training center for endoscopy nursing in Hong Kong, and is the only unit that is staffed by a Nursing Endoscopy Specialist.

RESEARCH

The Division has demonstrated a strong clinical and laboratory research output every year. Apart from close links with other disciplines at the Queen Mary Hospital and with various centres in other regional hospitals in Hong Kong, the Division has strong research links with centres in Australia, China, U.K. and U.S.A. In 1995, research projects are assisted by two higher-degree postgraduate students, two honorary research asssociates with one holding a PhD, 7 laboratory technicians and 1 research secretary.

Bench work is generally carried out in the three general research laboratories of the Department, which the Division shares with other disciplines in the Department. Radioimmunoassays for serum gastrin, pepsinogens, somatostain and epidermal growth factor, and serological detection of Helicobacter pylori have been developed. Bench work for hepatology research is carried out in the Wellcome Laboratory housed independently in the Queen Mary Hospital. Clinical research investigations are performed in the **Simon K.Y. Lee Digestive Disease Laboratory**, which is in close proximity to the Endoscopy Suites, and which is equiped with a mass spectrometer for Carbon-13 breath test for the detection of Helicobacter pylori infection, facilities for measurement of gastric acidity including the D50 test to measure gastrin sensitivity and 24-hour pH monitor, and state-of-the-art equipment for gastrointestinal motility manometry studies. Facilities for the measurement of gastric mucosal blood flow in the human are installed in the Endoscopy Suites.

Major Research Projects

Helicobacter pylori and gastroduodenal diseases

The Division has a long track record on epidemiological, pathogenetic and therapeutic

studies in peptic ulcer disease, and has in the past 10 years continued to research intensively in these areas with special emphasis on Helicobacter pylori infection. Two large scale surveys have been conducted to evaluate the Helicobacter pylori infection rates in Hong Kong and Changle of Fujian, and pioneer interventional studies have been set up to evaluate if eradication of Helicobacter pylori could reduce gastric cancer and peptic ulcer disease rates in infected individuals. In the laboratory, we are concurrently investigating (i) the colonisation factor antigens and the possibilities of developing vaccines from these antigens, (ii) the interaction between Helicobacter pylori infection and NSAIDs in an animal model, and (iii) cytotoxin-producing strains and metronidazole-resistant strains.

Gastric injury and protection mechanisms

We are experimenting both in the animal and the human model to evaluate the exact mechanisms of adaptive cytoprotection incurred by mild irritants. We have conducted extensive studies in health and disease to evaluate the gastric mucosal microcirculation and to assess the effect of drugs on the microcirculation.

Gastrointestinal haemorrhage

We currently focus on the prevention of rebleeding after endoscopic haemostasis and on identifying bleeders who are fit for early discharge to minimize hospital cost.

Gastrointestinal oncology

In addition to Helicobacter pylori, work is in progress to evaluate the influence of co-factors such as nitrosamine exposure, dietary factors and lifestyle in stomach cancer. We are also evaluating different chemotherapeutic regimens for the treatment of gastrointestinal adenocarcinomas. Molecular biology technology has been applied to study familial gastrointestinal cancer syndromes.

Chronic hepatitis B carriage and cirrhosis

In the Chinese population, it was shown that hepatitis B infection was frequently transmitted from maternal carriers. Intra-familial spread from carrier fathers or siblings was also common. The natural history of chronic HBV infection in Chinese is very different from that in Caucasians. Carrier children were usually highly viremic but had minimal liver disease. The level of HBV replication generally decreased with age and duration of infection. The transition from replicative to non-replicative phase of HBV infection was rapid and smooth in some patients but protracted and fluctuating in others. In the latter patients, fluctuations in level of HBV replication were often associated with recurrent exacerbations which may be mistaken for acute hepatitis B.

Two reports on the deleterious effect of prednisone in HBV-related chronic active hepatitis were published in the early 1980s. Our study on prednisone remains the only randomized controlled trial of steriod in chronic hepatitis B and is widely quoted. Since 1985, we reported the world's largest, unicentre randomized controlled trial of alpha-interferon in the treatment of chronic hepatitis B and is the first centre in the world to conduct randomized controlled trials of interferon in carrier children. Our results were disappointing. However, two subsets of patients may have some benefit. Prednisone priming appears to have a marginal improvement on the antiviral response in carrier children.

In the most recent studies, a new antiviral agent, lamivudine, is tested. Our team has been invited as one of the first centres to try this new drug. An initial phase II trial showed that lamivudine was effective in suppression of HBV DNA in 100% of the patients. The drug was almost free of side effects. At present, a double-blind multicentre phase 3 trial is being carried out to investigate the long term use of lamivudine in HBV carriers.

Hepatocellular carcinoma (HCC)

HCC is the commonest cancer affecting males in the world and the second commonest cancer in Hong Kong. The probable role of HBV in hepatocarcinogenesis was drawn from

epidemiological studies, molecular virology and animals infected with the hepadna viruses (a group of viruses phylogenetically related to HBV). From our studies, we concluded that in chronic HBV infection, there was random integration of HBV DNA into the host genome. The cirrhosis associated with HBV infection would enhance HCC development by necroinflammation and increased HBV DNA integration during regeneration of cells. Random HBV DNA integration may trigger the development of malignant clone(s) of cells, leading to HCC.

The clinical features of HCC patients were reviewed in two studies involving almost 400 Hong Kong Chinese. The male to female ratio was 5 to 1 with a peak incidence of presentation at the sixth decade. Only 66% of subjects had significantly elevated alpha-foetoprotein (AFP) level of over 200 ng/ml. 95% of the subjects were positive for HBsAg in the serum. A significantly higher protportion of males had cirrhosis than females HBV carriers (95% vs 71%). These findings support the importance of HBV and cirrhosis in hepatocarcinogenesis.

The only two indicators of poor prognosis were a raised bilirubin at presentation and the presence of clear cells in the hepatoma. The resectability rate was only 3% in our series. The median survival rate was 3.5 weeks for untreated patients.

Since the majority of our patients has inoperable HCC, the treatment of these patients was therefore systematically studied. Doxorubicin (adriamycin) recombinant alpha2 interferon, (rIFN) and interleukin 2 were studied in controlled settings. Only marginal befnefit was observed on survival in patients receiving these agents. In conjunction with the Department of Diagnostic Radiology, The University of Hong Kong, tumour chemoembolization had been tried and found to be useful in tumour shrinkage, especially if the tumour is less than 9 cm in diameter.

Hepatitis B vaccination

The ultimate goal for the eradication of HBV associated disease, i. e. , cirrhosis and HCC, is the global eradication of HBV infection by hepatitis B vaccination. Prospective randomized studies were carried out with both the plasma-derived vaccines and the recombinant DNA yeast vaccine. They were demonstrated to be highly efficacious in our population. Furthermore, we have demonstrated that no booster dose is required for those who have had successful seroconversion after active immunization.

Liver transplantation

The liver transplantation team of the Queen Mary Hospital has the most active liver transplant programme in South East Asia. It performed the first liver transplantation in Hong Kong in 1991, and has carried out over 20 cases in the ensuing 3.5 years. The reluctance in organ donation in this Chinese community has gradually improved with the intense public educational programmes mounted by the Hong Kong Liver Foundation, which this Division has helped to found and with which we collaborate closely. The team has also started a programme for HBV related cirrhosis, using Lamivudine to prevent reinfection of the transplanted liver by HBV.

FUTURE DIRECTIONS

A solid foundation has been laid down that enables the Division to take a leading role in education, research, and clinical service in Hong Kong, the region and the world. With the establishment of the Academy of Medicine in 1992, a statutory body that overlooks postgraduate education and training in Hong Kong, the Division has liaised, and will continue to do so, with the Hong Kong College of Physician in establishing training guidelines and programmes for accreditation in gastroenterology and hepatology. Education and research frontiers and network will continue to widen in the direction of the University's mission, and clinical service will continue to respond spontaneously and responsibly to the need of the community. The sovereignty change in 1997 has motivated the Division to play an ever more active role in advancing gastroenterology and hepatology in the region.

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† *Publications produced by staff whilst attached to or visiting other centres*

‡ *Publications produced by staff while employed at other centres before joining the Department*

* *Publications in non-indexed journals*

S.K. Lam, C.L. Lai, C.K. Ching and Benjamin C.Y. Wong

THE GENERAL PRACTICE UNIT

The General Practice Unit was established in the Department of Medicine in 1985. It has developed from a one lecturer Unit into the present team with a professor, one senior lecturer, one lecturer, two vocational trainees and more than 60 honorary clinical lecturers. The current full-time academic staff in the Unit are:

Professor Anthony S. Dixon, *MB ChB FCCFP*
Head & Dr. Sun Yet Sen Chair

Dr. Cindy L.K. Lam, *MBBS, FRCGP, FHKAM (Family Medicine)*
Senior Lecturer

Dr. Daniel T.P. Lam, *MBBS, FRACGP*
Lecturer

Trainees

Dr Hing Lam, *MBBS*

Dr Arnold K.H. Kwok, *MBBS*

Family physicians who at some time from 1985 to 1995 were staff of our unit include:

Dr Maxwell H.W. Tse, *MBBS, MRCGP*

Dr Clark Munro, *MB ChB, FRACGP, FRCGP, FHKCGP*

Dr Susan L. Douglas, *MD, CCFP*

Dr Eileen Y.Y. Tse, *MBBS, MRCGP, FHKAM (Fam Medicine)*

CLINICAL SERVICE

The Unit initially operated at the Violet Peel Health Centre and moved to the present permanent premises at the Ap Lei Chau Clinic in September, 1992. The Unit runs a full-time family medicine clinic providing primary, whole patient, continuing and comprehensive care to 5000 patients in the community. Apart from the regular clinics, the Unit operates a special diabetic clinic and a well women clinic to meet the needs of these special groups of patients. The clinic is an example of a good family medicine practice and tests new models of care like shared care and special preventive clinics.

The clinic has a computerized medical record system that contains information on the demography, important health risk factors, morbidities, medications, investigations and referrals of each patient. The clinical practice of the unit provides a strong base for undergraduate teaching, postgraduate training and clinical research.

Staff of our unit is actively involved in the work of the Hong Kong College of General Practitioners to promote a high standard of primary care in our community.

EDUCATION

Undergraduate teaching

The major part of the undergraduate teaching by the Unit is the general practice clerkship as part of the subspecialty clerkship in the final year of the medical curriculum. The main aim of the clerkship is to teach students skills on clinical interview, problem solving, cost-effective use of resources and whole patient management that are applicable to all medical disciplines. The Clerkship also introduces students to the work of a general practitioner. The clerkship contains four major components: the introductory seminars, clinical consultations, tutorials and general practice attachment. Most of the teaching is done in small groups of no more than eight, and on a one-to-one basis in the case of the general practice attachment. The Unit receives regular advice from senior academics in family medicine from overseas who visit our unit as the H.K.C.G.P. visiting professors.

The Unit is also involved in communication skill courses in the first and third years of the medical curriculum. We collaborated with the Department of Community Medicine in the production of two video-tapes in Cantonese on patient-centred interview and information giving. Our staff are also tutors of the "information giving" session for students in the third year. We also help to recruit patients for the patient care projects of students in the first year.

Postgraduate education

The Unit is an accredited training centre for the Vocational Training Programme in Family Medicine of the Hong Kong College of General Practitioners. Our staff are also examiners of the HKCGP fellowship examination. We contribute to the continuing medical education activities and trainee seminars as speakers on a regular basis.

We have two vocational trainee posts for trainees from the Department of Health. We also have close collaboration with the Department of Health, acting as its Honorary Consultant in Family Medicine and trainers of their trainees in Family Medicine.

The Unit also runs a training course for trainers of the Vocational Training Programme of the Hong Kong College of General Practitioners. We have regular meetings with our honorary clinical lecturers for teacher training.

Internationally, the Unit is also approved as a training centre for the elective module for the residence training programme in family medicine of the University of Toronto, Canada. We also provide support to students of the distant diploma/ master in family medicine course of the Monash University. We will be involved in faculty development of the Department of Family Medicine of the Capital University of Beijing.

RESEARCH

Our Unit has been actively involved in research since its establishment in 1985. We have gained much experience in community surveys and questionnaire design. We are going to be involved more with qualitative research in the next few years which is becoming a popular research method in general practice and medical education. The research projects of our Unit can be grouped under the following five main areas:-

1. Patient care research

- Clinical audits on diabetes, obesity, use of benzodiazepines and antibiotics. These have served as examples of quality assurance research in patient care.
- The use of the COOP/WONCA Charts to measure the functional status of elderly and patients with chronic illnesses. This is a new concept in outcome measure. The Unit has developed and validated a Chinese translation of the COOP/WONCA Charts.

2. Morbidity studies

- Morbidity patterns in the community
- Prevalence of common illnesses like upper respiratory tract infection, allergic rhinitis, asthma, diabetes, depression and hypercholesterolaemia.

These studies contributed much to the understanding of these illnesses in our local populations.

3. Preventive care research

- Evaluation of screening programmes for hypercholesterolaemia, breast cancer, and diabetes mellitus. They provide data on the acceptability, feasibility and cost-effectiveness of these screening programmes for our population.
- Evaluation of screening instruments for psychological problems and family problems. These are pioneer studies in Hong Kong and in Chinese.

4. Cultural aspects of health and illness

- The use of medications and expectation from primary care service. They provide useful information for health service planning.
- Community attitude to institutional care of the aged. This will provide information for health care planning for our aging population.
- The application of Western survey instruments in Chinese, particularly the cultural relevance of translated questionnaires. This is an important issue for international comparative studies

5. Medical education

- Action learning research on effective learning, teaching and assessment methods.

- Studies on attitudes of general practice teachers.

The Unit has collaboration with departments of general practice/family medicine of the University of Toronto, the University of Sydney, in research. We are also involved in the research activities of WONCA (World Organization of Family Doctors).

Examples of collaborative research include studies on functional status and family function with the University of Toronto; an international study on asthma and asthma-like symptoms coordinated by the University of Sydney, the evaluation of the COOP/WONCA Charts coordinated by the research committee of WONCA.

We actively promote and publish research in our local populations, especially in primary care. We are involved in the editorial boards of the Hong Kong Medical Journal, the Hong Kong Practitioner, Family Practice (an international journal), and the Asian Medical News.

FUTURE DIRECTIONS

We have recently received seed funding to establish a Centre for Education and Research in Family Medicine. The Centre's goals are:

- To develop, test and implement innovative programmes in undergraduate, postgraduate and continuing professional education.
- To develop the educational skills of medical teachers.
- To encourage the development of skills in research and writing for publication.

Our interest is to become a regional centre for faculty development, by means of seminars, workshops, clinical fellowships and academic exchanges.

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training in general practice H K Pract 1992, 14 2263-2266

*Lam CLK What can general practitioners teach medical students? H K Pract 1993, 15 2765-2767

*Lam CLK, Catarivas MG What do we know about our general practitioner teachers? H K Pract 1993, 15 2768 2774

Publications produced by staff while employed at other centres before joining the Department

Publications in non indexed journals

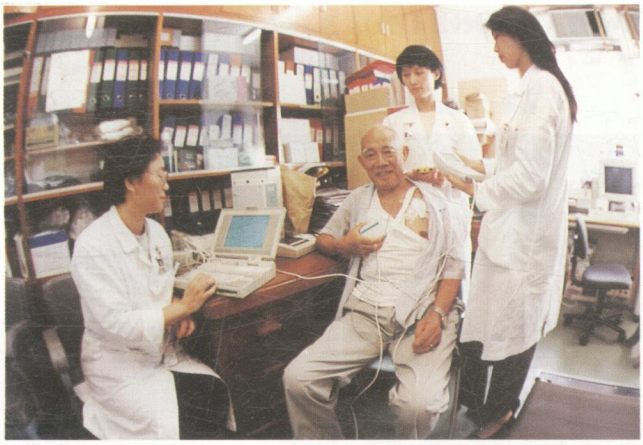
Anthony S. Dixon and Cindy L.K. Lam

DIVISION OF CARDIOLOGY

Cardiac catheterisation laboratory staff, support staff, medical and nursing staff of Cardiology Unit at Queen Mary Hospital

Medical staff of the Grantham Cardiology Unit

Cardiac Catheterisation Laboratory



Pacemaker programming

Tung Wah Hospital Cardiac Rehabilitation and Prevention Centre: graduation ceremony for participants

Patients undergoing cardiac rehabilitation at Tung Wah Hospital. Equipment includes treadmill, cycling and rowing machines

DIVISION OF CLINICAL PHARMACOLOGY

Left to right —
rear: Dr. B. Cheung, Prof. C.R. Kumana, Mr. T.M.F. Tong, Mr. S.M.S. Yeung;
front: Mrs. M. Kou, Ms. M.N. Ho, Mrs. C. Ambekar

The Division at the K.K. Leung Diabetes Centre – clinicians, nurses, post-graduates, students, dieticians, technicians and research assistants

In the Endocrine Laboratory – academic and basic research staff

At the E2 metabolic ward – endocrinologists and trainees, with senior endocrine nurse

DIVISION OF GERIATRIC MEDICINE

The Division of Geriatric Medicine was recently established in August 1994. It is currently staffed by two Hospital Authority staff :

Dr. L.W. Chu, *MBBS, MRCP (UK), FHKCP, FHKAM (Medicine)*
Consultant and Chief of Division

Dr. K.H. Wong, *MBBS, MRCP (UK), FHKCP, FHKAM (Medicine)*
Senior Medical Officer

CLINICAL SERVICE

Patient care services are based at Queen Mary Hospital and Tung Wah Group of Hospitals (TWGHs) Fung Yiu King Hospital. 12 acute geriatric beds will be available for use in August 1995. The model of operation is based on a need-related basis. Through a multi-dimensional screening assessment, elderly patients are screened out for multi-disciplinary geriatric management. Over the past ten months, 2200 patients were screened and 13% needed geriatric assessment and management.

TWGHs Fung Yiu King Hospital provides a 80-bed convalescent service, a 24-bed rehabilitation service and a 80-bed infirmary service. A 20-place geriatric day hospital will be in operation in January 1996. A geriatrician-led multi-disciplinary outreach service has also started operation in October 1994.

Our geriatric outpatient clinic is located at Sai Ying Pun Jockey Club Polyclinic. The clinic has started service in January 1995. Approximately 300 patients were seen over the past five months.

EDUCATION

For many years, undergraduate teaching is offered by honorary lecturers. In the past ten months, the staff of the Division has played an increasingly important part in undergraduate teaching. The format include bedside and teaching clinic. However, the core curriculum is still not in place. This area needs to be improved in the coming year.

The Division participates in the Basic Physician Training Programme, and the Geriatric Training Programme of the Hong Kong College of Physicians. Ward round, case conference, weekly topic discussion and journal meeting, weekly joint geriatric meeting with geriatric colleague in Ruttonjee Hospital, and monthly inter-hospital geriatric meeting are present modes of training.

The Department of Social Work and Social Administration of the University of Hong Kong runs an Advanced Diploma (Aging & Health) for postgraduate students. We provide a clinical attachment module for the student, to enrich their training.

Education of care-givers for the elderly person can help to equip them with the knowledge and skills in the care-giving process. The Division regularly holds certificate educational programmes for care-provider of the residential aged homes in the community.

Health promotion community programmes with health talk, exhibition and screening are also held regularly, in collaboration with community elderly centres, District Board and/or Hong Kong College of General Practitioners.

RESEARCH AND FUTURE DIRECTIONS

Research in the area of geriatric medicine is yet to be developed in the Division.

Demographic data shows that the population of Hong Kong is aging. In 1994, 9.65% of our population is 65 year old or over. By the year 2000, the figure will become 11.35%. The increase is from 560,600 to 684,200 (22%). Elderly persons are heavy user of the health care system. Around 37% of our hospital in-patients are aged 65 or above. The prevalence of multiple

diseases and disability is also higher in the elderly age groups.

Thus, clinical research into diseases prevalent in the old age is important. Moreover, health service research into the appropriate health care delivery model is also important to our hospital and society.

One example is to look into the value of post-hospital discharge support system for our elderly patients. We are now conducting a pilot study of "a co-ordinated discharge programme for geriatric patients" in Queen Mary Hospital. Outcome measures including mortality rate, length of hospital stay and measures of quality of life will be used to assist our evaluation. Another example is the care model of "orthogeriatric service". The latter will be organized into a pilot service in Queen Mary Hospital and Fung Yiu King Hospital in late 1995. If research grant is available, a control study will be conducted to compare this model with the traditional care model.

PUBLICATIONS

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‡ *Publications produced by staff while employed at other centres before joining the Department*

* *Publications in non-indexed journals*

L.W. Chu

DIVISION OF HAEMATOLOGY AND ONCOLOGY

The Division of Haematology and Oncology of this Department has a great tradition and represents the history of haematology in Hong Kong. The division has produced generations of prominent haematologists and the team has earned high international reputation. The Division is the major centre for treatment, research and training in clinical haematology in this region.

It is staffed by:

Professor T.K. Chan, *MD, FRCP, FRCP(E), FRCP(G), FACP, FRCP, FRCPath, FAMS, FHKCP, FHKAM (Medicine), J P*
Professor and Chief of Division (until July 1995)

Professor Sir David Todd, *KB, MD DSc(Hon) HK, DSc(Hon) CUHK, FRCP, FRCP(E) FRCP(G), FRCP(Ire), FRACP, FRCPath, FAMS(Hon), FHKCP, FHKAM (Medicine), J P*
Professor

Professor Vivian N.Y. Chan, *MSc, PhD (Lond), DIC, FACB, FRCPath*
Professor

Dr. Raymond H.S. Liang, *MD, FRCP, FRCP(E), FRCP(G), FHKCP, FHKAM (Medicine)*
Reader

Dr. Y.L. Kwong, *MBBS, MRCP(UK), MRCPath, FHKCP, FHKAM (Medicine & Pathology)*
Lecturer

Dr. C.S. Chim, *MBBS, MRCP (UK), FHKCP, FHKAM (Medicine)*
Senior Medical Officer

Trainee

Dr. C.K. Lee, *MBBS, MRCP (UK)*
Medical Officer

Past members

Dr. Edmond K.W. Chiu, *MBBS MRCP(UK), FHKCP, FHKAM (Medicine)*

Dr. Albert K.W. Lie, *MBBS, MRCP (UK), MRCPath FHKCP, KHKAM (Medicine)*

The team is assisted by rotation registrars as well as elective trainees from paediatrics, gynaecology and radiotherapy.

CLINICAL SERVICE

The Division of Hematology and Oncology at Queen Mary Hospital is the tertiary treatment referral centre for blood diseases in Hong Kong. Patients are also referred from Macau, mainland China and nearby countries. Professor Vivian Chan runs the only molecular diagnostic laboratory in HA hospitals for prenatal diagnosis of genetic diseases. The state of art equipment, facilities and technology are available.

Every year, more than 300 new patients are referred to us for management. They are mostly suffering from acute leukaemia and malignant lymphoma. A wide spectrum of haematological disorders are also seen. They are accommodated in the general medical wards with ten beds being designated for reverse isolation of neutropenic patients. At any time, a total of 50-80 in-patients are under the direct care of the haematology team.

A specially designed 10-bed unit for performing bone marrow transplantation is available. Since our performance of the first bone marrow transplant (BMT) in Hong Kong 5 years ago, a total of 250 patients have undergone BMT. The majority of the transplants are allogeneic using sibling marrow donors. The unit also supports the unrelated marrow donor registry of the Hong Kong Marrow Match Foundation and more than 20 transplants using volunteers from the registry have been performed. The transplant patients usually suffer from acute or chronic leukaemia, aplastic anaemia or lymphoma. In collaboration with the department of paediatrics, transplants are performed for children with thalassaemia major and congenital immunodeficiency syndrome. A cord blood transplant has been successfully done recently on a child with β-thalassaemia major. An autologous marrow/peripheral stem cell transplant programme is also available for patients with myeloma and solid tumours such as

lymphoma, breast cancer, nasophyngeal cancer and others. We have also a plasmapheresis and cell separation unit which performs about 200 pheresis a year.

The outpatient clinics are located in both Queen Mary Hospital and Sai Ying Pun Jockey Club Polyclinic. There are three outpatient sessions for lymphoma, leukaemia and general haematology, two chemotherapy clinics for lymphoma, two follow-up clinics for patients who have received marrow transplant and one special clinic for haemophilia and thalassaemia. Every week, more than 300 patients are seen in these outpatient clinics. Many procedures such as intravenous drug therapy, blood product transfusion, lumbar puncture and marrow biopsy are performed as day cases.

EDUCATION

The division participates in the undergraduate teaching program in general medicine as well as subspecialty teaching in clinical haematology and medical oncology. They include lectures, teaching clinics, tutorials, bedside and outpatients' teaching.

We also contribute to the basic physician training programme and the clinical haematology/medical oncology higher physician training programme of the Hong Kong College of Physicians and the Hong Kong Academy of Medicine. Professor Sir David Todd and Professor TK Chan are the presidents of the Hong Kong Academy of Medicine and the Hong Kong College of Physicians respectively.

The division is playing an important part in the supervision and examination of postgraduate research students in the Department. Also, we provide clinical and laboratory training for postgraduate doctors and technicians from mainland China.

RESEARCH

In the past decades, many advances have provided better understanding of the biology of various blood diseases and great success has also been achieved in their treatment. Focusing our research on diseases of local importance, this department has contributed significantly to the knowledge of these diseases. Also, new technology for diagnosis and treatment of various blood diseases has been introduced to Hong Kong through our effort. The high international reputation is witnessed by the list of publications, competitive research grant awards, international collaborative research projects, and international invited lectures and visits.

Lymphoma. A peculiar pattern of lymphoma has been observed in Hong Kong. Compared to the Caucasian populations, we are seeing a low incidence of Hodgkin's disease and follicular lymphoma. On the other hand, T-cell lymphoma, nasal lymphoma and gastrointestinal lymphoma appear to be more common. We have published extensively the clinical characteristics of our patients with different types of lymphoma. Also, patients are treated with clinical protocols aiming to determine the optimal therapy for each category of disease. We also applied modern techniques in molecular biology to obtain a better understanding of biology of the disease.

Leukaemia. Clinical trials are conducted to determine the best therapy for our patients suffering from acute leukaemia. In collaboration with the Department of Pathology, efforts are made to determine the cytogenetic and molecular changes in different types of leukaemia. These data also provide important prognostic information.

Bone marrow transplantation. BMT has become a standard treatment for many haematological disorders, including leukaemia, lymphoma, aplastic anaemia, Cooley's anaemia and congenital immunodeficiency syndrome. We have published extensively on our experience. Research focuses on specific issues of local importance such as graft-versus-host-disease, cytomegaloviral infection, hepatitis B reactivation and BMT using unrelated marrow donor.

Molecular oncology. We have attempted to characterise various oncogene rearrangements in different types of blood cancers. Applying polymerase chain reaction to detect these changes, they can be used as markers for detection of minimal residual disease. These techniques are

applied to monitor response to therapy as well as detecting occult tumour contamination before autologous marrow transplant. Other important research work includes studying the possible pathogenetic role of Epstein Barr virus and HTLV-I virus in our patients with lymphoma.

Infections in immunocompromised host. Extensive study has been performed on various opportunistic infections following intensive cytotoxic chemotherapy or marrow transplantation. They include cytomegalovirus, hepatitis B and C infections. Also, clinical trials are performed to determine the optimal way of preventing and treating opportunistic infections.

Non-malignant blood diseases. Our department is world-renowned in research in genetic blood diseases such as thalassemia, haemophilia and glucose-6-phosphate dehydrogenase deficiency. The work has been extended to other genetic diseases such as Duchenne muscular dystrophy and Huntington's disease. (Refer to Division of Molecular Medicine)

Competitive research grant awards. Over $2 million have been successfully obtained from competitive grants, including the Research Grant Council and the University for research on blood cancers:-

- Detection of minimal residual disease in patients with lymphoid malignancies.
- HLA type and Hodgkin's disease.
- HTLV-I virus and T-cell lymphoma in Hong Kong.
- Use of fluorescence in situ hybridization in blood cancers.
- Morphological, genotypic and aetiological correlations in myelodysplastic syndrome.
- Multiple drug resistance gene in blood cancers.

International collaborative research projects. Connections have been made with renowned international institutions to perform collaborative research:-

- The use of etoposide for acute myeloid leukaemia with the Australian Leukaemia Study Group.
- An improved clinico-pathologic classification for non-Hodgkin's lymphoma with seven renowned international centres coordinated by the University of Nebraska, USA.
- The possible role of the bcl-6 oncogene in diffuse B-cell lymphoma in Chinese with the Columbia University, USA.
- To study the clinical outcome of patients receiving marrow transplant with the International Bone Marrow Transplant Registry, USA.
- Unrelated marrow donation with the National Marrow Donor Program of the United States.
- The treatment of low grade gastric lymphoma using anti-helicobacter therapy with the University College and Middlesex Medical School, London (the UK Lymphoma Study Group).
- Genetic defects in paroxysmal nocturnal haemoglobinuria with Memorial Sloan Kettering Cancer Institute, New York, USA.
- Genetic defects in leukaemia with Massachusetts Institute of Technology, USA.

FUTURE DIRECTIONS

Over the years, this division has developed a good foundation. It will continue to contribute to knowledge by performing innovative clinical and laboratory research. The vast amount of clinical materials available and the development of new technology such as molecular biology, marrow transplantation and gene therapy are providing great opportunities for high quality research.

Management of blood diseases, especially haemic malignancies, has also advanced remarkably. It is necessary for the division to have a team of dedicated medical and nursing staff to provide high quality and sophisticated service. The patients are ideally placed in designated haematology wards managed by specialised nurses. There is also an increased demand for more reverse isolation facilities for the immunocompromised in the hospital. Furthermore, the ambulatory activities have to be expanded.

We would also like to see medical oncology being

developed as a distinct specialty in the department. This will provide better support to the other departments such as surgery, gynaecology and radiation oncology, which are also dedicated to the management of cancer patients. Furthermore, in support of the Cancer Research Centre of the University and the Cancer Centre of Queen Mary Hospital, collaboration should be enhanced between departments.

For further improvement in postgraduate training, we are committed to more structured teaching in clinical haematology and medical oncology. More laboratory space has to be identified to accommodate the increase in number of research postgraduates.

There is no doubt that the division will continue to develop and the opportunity is there for the budding doctors, scientists and nurses who are interested in joining this exciting field.

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† *Publications by staff whilst attached to or visiting other centres*

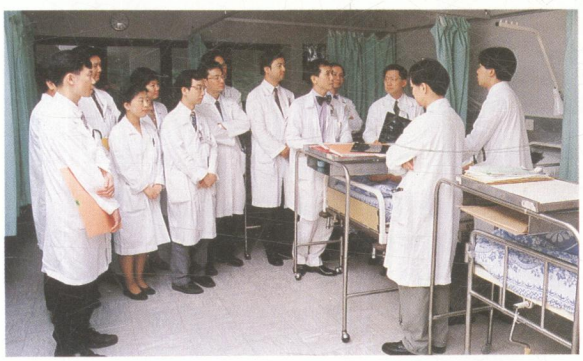
* *Publications in non-indexed journals*

Raymond H.S. Liang

DIVISION OF GASTROENTEROLOGY AND HEPATOLOGY

The medical and surgical Gastroenterology and Hepatology Team including clinicians, nurses and research assistants

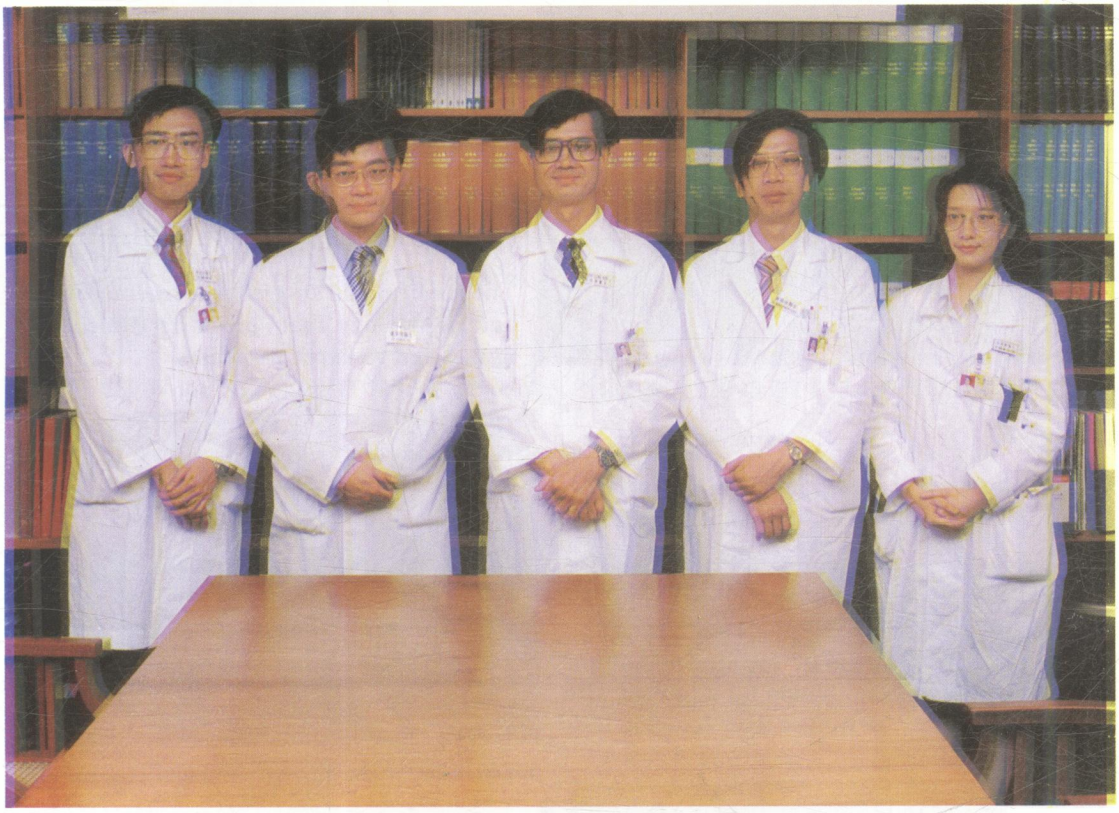
Dr. C.L. Lai performing abdominal ultrasound examination for a patient with deranged liver function tests



Case discussion during a regular combined Gastroenterology and Hepatology ward round

Paient undergoing an upper endoscopy examination and insertion of nasoduodenal feeding tube

DIVISION OF GERIATRIC MEDICINE



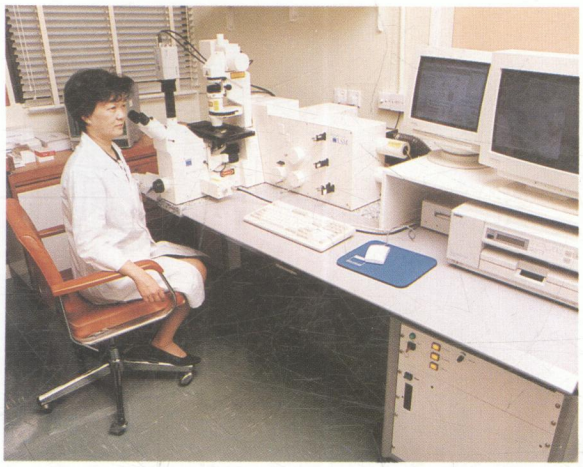
**Left to right: Dr. K.C. Chang, Dr. Conrad Pei,
Dr. L.W. Chu, Dr. K.H. Wong, Dr. M.Y. Mok**

DIVISION OF HAEMATOLOGY AND ONCOLOGY

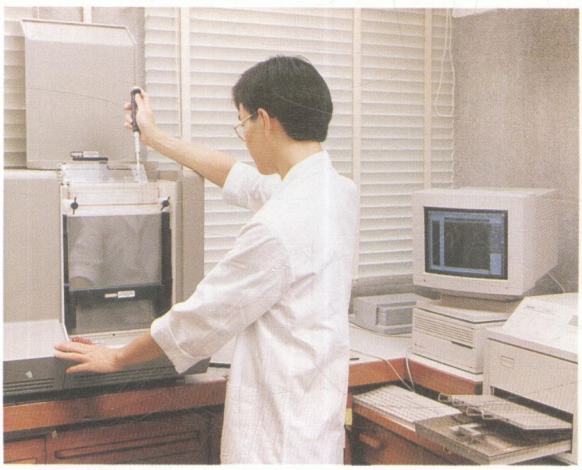
The Division: physicians, nurses and technicians

The nurses at work in J8 Bone Marrow Transplant Unit

Computer-programmed freezing of marrow cells



Computing a FISH image with the latest model of laser confocal microscope



Loading a sequencing gel on the automated sequencer

Making oligonucleotides on the DNA synthesizer for PCR

DIVISION OF NEPHROLOGY

The medical staff

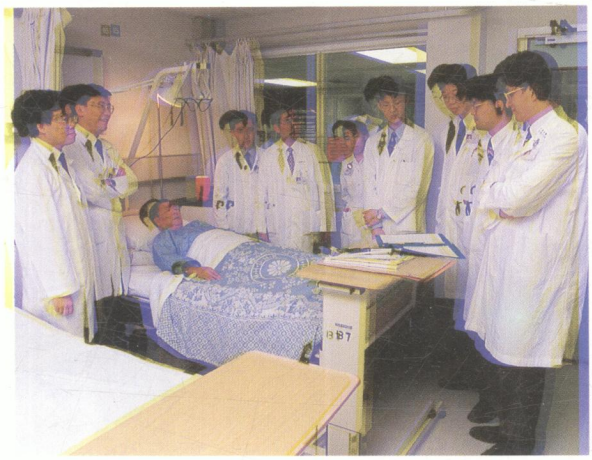
The consultants with the chief nursing officers, DOM and some of the renal nurses on duty

The consultants with laboratory staff and secretary

DIVISION OF NEUROLOGY

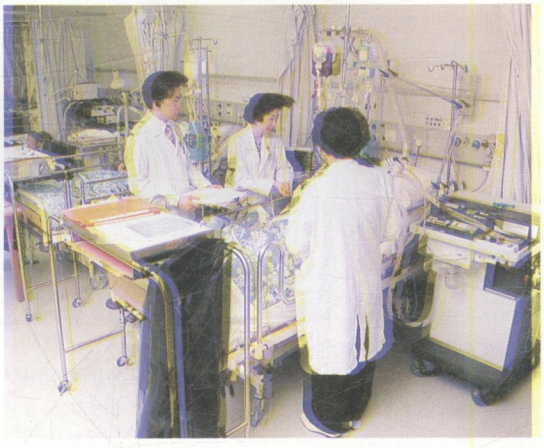
Full complement of staff

Medical, research and technical staff in the Neurodiagnostic Laboratory



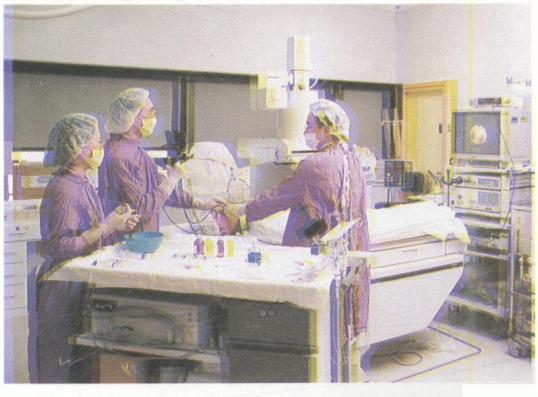
Wednesday Grand Round

The Division in the Lung Function Laboratory: clinicians, nurses, technicians, research assistants and secretaries



A round at the Intensive Care Unit (Medical)

Automated body plethysmograph in action



Video-assisted fibreoptic bronchoscopy

DIVISION OF RHEUMATOLOGY

Clinicians, nurses and technicians

The clinical team

The research team

DIVISION OF MOLECULAR MEDICINE

The advent of DNA technology in the 1970s - 1980s brought rapid advances in our knowledge of the molecular basis of disease. As haematology is the specialty in which most of the early work in molecular medicine were centred, Professor T.K. Chan recognised the importance of this new 'field' very early on and gave every encouragement to setting up this Division in our Department. With the advice and help of Professor Y.W. Kan, in whose laboratory I learned most of the DNA techniques, we established our DNA Diagnostic Laboratory in 1982. The high incidence of thalassaemia trait in S.E. Asia means that there will be approximately 280 pregnancies at risk for homozygous α or ß thalassaemia amongst the 80,000 births in Hong Kong each year. With the establishment of the Wu Chung Prenatal Diagnosis Laboratory at the Tsan Yuk Hospital at around the same time, Professor H.K. Ma and Professor T.K. Chan decided to undertake this joint venture of establishing the DNA Prenatal Diagnosis Centre for common genetic diseases. The Department of Obstetrics and Gynaecology is responsible for the fetal sampling and the Department of Medicine, responsible for the laboratory analysis. This DNA Prenatal Diagnosis Centre, established in 1982, is the first in SE Asia and the only one in Hong Kong to-date.

The Division of Molecular Medicine was established in 1984. The staff in this Division are:

Professor Vivian Chan, *BSc(Hons), MSc, DIC, PhD, FACB, FRCPath*
Professor and Chief of Division

Mr. Ken Lau, *BSc, MSc*
Chief Technologist

Mr. Patrick Au, *BSc MPhil*
Scientific Officer

Miss Jenny Chan, *BSc, MPhil*
Medical Technologist

Trainee

Mr. Benjamin Yip, *BSc*

Past staff

Mr. Tim Chan, *BSc, MPhil*

OBJECTIVE

The main objective of the Division of Molecular Medicine is to establish DNA techniques for diagnosis/prenatal diagnosis of common genetic diseases and to apply molecular biology techniques for better patient management and treatment e.g. DNA fingerprinting for detection of engraftment or chimerism in bone marrow transplant (BMT) recipients; detection of minimal residual disease in leukaemic patients post chemotherapy or BMT as an indication of early relapse.

CLINICAL SERVICE

The Division is responsible for all the DNA prenatal diagnosis of common genetic diseases in Hong Kong. The thalassaemia programme (α and ß thal) was first established and to-date we handle approximately 100 cases of α thal and 45 cases of ß thal per annum. Beginning 1987, carrier testing and prenatal diagnosis of haemophilia A and B were also offered, and this was followed shortly by similar services for families at risk for Duchenne muscular dystrophy (DMD). Referrals are accepted from obstetricians all over Hong Kong. The counselling and fetal sampling are performed at two centres now, one at the Tsan Yuk Hospital and a second one, also operated by the University of Hong Kong Obstetrics & Gynaecology Unit, at Kwong Wah Hospital. To facilitate early diagnosis, additional screening was instituted in 1991, in collaboration with the Family Planning Association (FPA). Premarital couples or newly-weds who seek check-up and counselling at the FPA clinics are also screened for low MCV. Those couples with low MCV and normal iron status are referred directly to our Division at Queen Mary Hospital for further characterization of their α or ß thal status and preliminary counselling as to the mode of inheritance of the disease, the methods of prenatal testing, the relative risk of amniocentesis and chorionic villus biopsy. They are notified by post of their blood test result and the need for prenatal

diagnosis or otherwise. The prenatal diagnosis programme has been a great success as judged by the number of at risk couples who re-use the service at the Prenatal Diagnosis Clinic at Tsan Yuk Hospital. The extension of the prenatal diagnosis service to include haemophilia A and B as well as DMD has resulted not only in prevention of the birth of affected males, but has also provided carrier testing for females with family history of the diseases. With the identification of the Huntington gene, IT5 in 1993 and discovery that the pathological mechanism of Huntington's disease (HD) is due to expanded trinucleotide repeats at the 5' end of the gene, we embarked on a study of HD in Chinese. In collaboration with the Division of Neurology of our Department and the University Department of Psychiatry, we are now able to provide predictive testing to family members. Referrals from other neurological units and psychiatric hospitals throughout Hong Kong are accepted to diagnose HD and dentatorubral and pallidoluysian atrophy (DRPLA) by DNA analysis.

Other services include setting up DNA-fingerprinting for monitor of marrow engraftment or chimerism in BMT recipients, devising polymerase chain reaction (PCR) techniques for immunoglobulin gene (Ig) rearrangement and reverse transcriptase-PCR (RT-PCR) of fusion gene products in monitoring minimal residual diseases in leukaemic patients after therapy.

EDUCATION

The Division is responsible for lecturing on 'Application of molecular biology in clinical medicine' as well as clinics to specialty clerks on 'molecular medicine'. In addition, lectures on 'prenatal diagnosis' are given to B.Sc. students taking Molecular Biology as a core module and lectures on 'medical genetics' to graduate secondary school teachers as part of their Diploma of Education curriculum. Lectures and discussions are held with the Obstetricians and Counsellors of the Prenatal Diagnosis Team at Tsan Yuk and Kwong Wah Hospitals to update them on current methods of diagnosis, their accuracy and the risk of recombination etc. The aim is to provide, through them, a better explanation to the couples undergoing prenatal testing. Many other postgraduate lectures are arranged through the invitation of various professional groups such as the Hong Kong Society of Haematology and the Hong Kong Paediatric Haematology and Oncology Study Group.

Advice and teaching are given to colleagues on various DNA techniques. Throughout the years, there have been a number of visiting fellows or scientists from S.E. Asia, China, and U.S.A. These visits are supported by the China Medical Board or British Council. A number of colleagues have acquired techniques in the DNA laboratory for work on their M.D. and there are a couple of postgraduate students working on M.Phil. projects.

RESEARCH

Haematological disorders. Since each ethnic group carries its own specific set of mutations, before embarking on prenatal diagnosis of the various congenital diseases, we have to characterise the molecular defects for each particular disease in the local Chinese population. A number of novel ß thal defects have been isolated by our group, namely codon 14/15, + G and codon 71/72, + T. With the advent of PCR, it had been possible to achieve a million-fold amplification of a gene fragment, and we were one of the first to devise a strategy for direct genomic sequencing. This obviates the need of M13 cloning to produce single-stranded DNA for conventional dideoxy sequencing. We initially used horse-radish peroxidase linked allele specific oligonucleotide (HRP-ASO) probes for direct detection of ß thal mutations in prenatal diagnosis in 1989-1992, but this required prior hybridization to 20 mutant and normal ($ß^T$ and $ß^A$) probes respectively, to define the defect, and was obviously time-consuming. The more recent approach is establishment of a reverse dot-blot procedure whereby all the oligonucleotides pertaining to the 12 known Chinese ß thal mutations are dotted onto nylon strips and are hybridized simultaneously to the PCR-amplified ß gene of the patient in solution. This has the advantage of achieving simultaneous screening/

diagnosis in a single step. More recent research in prenatal testing of ß thal in our Division involves the use of 'colour'-oligonucleotide primers for mutation-specific PCR.

To provide for carrier testing and prenatal diagnosis of haemophilia A and B, we studied the heterozygosity rates of the various restriction fragment length polymorphisms (RFLPs) in the FVIII and FIX genes. This led to our discovery of two additional closely-linked Xba I RFLP sites in intron 22 of the FVIII gene, resulting in increased heterozygosity and enhanced usefulness of the Xba I RFLP in linkage of the gene. With the use of the Bcl I and Xba I (A + B + C) sites as well as the extragenic Taq I-St14 polymorphism it is possible to offer prenatal diagnosis for 95% of the local families at risk. The finding of microsatellite repeat polymorphism in intron 13 and intron 22 has further increased the possibility of gene linkage to 100%. Our Division has recently applied the use of fluorescein-labelled primers (using HEX- and FAM- phosphoramidite at the 5' end) for multiplex PCR, so that 'coloured'-PCR products are obtained. This approach enables us to use an automated sequencer to analyse the multiple microsatellite repeat polymorphisms simultaneously, providing rapid haplotype assignment for an extensive family of 12 members within a few hours. The same technique has also been applied for short tandem repeat (STR) polymorphisms of the DMD gene.

To provide better understanding of the molecular mechanisms of haemophilia A in Chinese, we have recently completed a study in characterising the defect in 41 unrelated patients. Apart from the 14 patients with gene rearrangement, the other 17 defects are small deletion, insertions, nonsense or missense mutations. Two involved mutation hotspots and the others are novel defects not previously described.

The absence of heterozygosity or very low heterozygote rate for the common RFLP sites of the FIX gene in Orientals means that prenatal diagnosis by linkage analysis is virtually impossible. Thus characterization of the molecular defect is the only approach. With the heterogenous molecular mechanism of haemophilia B, we were able to delineate eight new defects for nine unrelated patients. Six of these mutations affect an enzyme recognition site and can thus be diagnosed by direct restriction enzyme analysis of PCR-amplified exon where the mutation lies. One patient has a rare pathology of partial duplication of the 3' end of the FIX gene and RT-PCR of illegitimate mRNA in lymphocytes was applied to explain the mechanism of the duplication.

Haemic malignancies. In collaboration with colleagues in the Division of Haematology/ Oncology, other RT-PCR have been developed for detection of AML1/ETO transcript in t(8:21) translocation and minimal residual disease in promyelocytic leukaemia, with monitor of the fusion gene (PML-RaRα).

Neurogenetic diseases. As the incidence of DMD is 1:3000 live-born males, the need to offer carrier and prenatal testings to at risk families is obvious. Through the Collaborative Research Group on DMD, we obtained a series of linked probes for RFLP analysis. Recent work in this area includes the use of fluorescein-labelled primers for multiplex PCR of STR in the DMD gene. This semi-automated method of linkage analysis has been applied to our prenatal diagnosis programme. In collaboration with the Division of Neurology in our Department as well as other neurology units throughout Hong Kong, a study of Chinese HD was made. The expanded trinucleotide repeats were observed in all but one of the local HD patients, whilst normal-sized repeats were found in 174 normal X chromosomes analysed. Being the first group to study the (CAG)n, (CCG)n and (CCN)n in the same individuals, we were able to conclude that the latter repeats were not as polymorphic and probably not associated with disease state. Results of predictive testing in HD were only made available to the individuals concerned, with combined counselling from both the Divisions of Molecular Medicine and Neurology as well as the psychiatrists from the University Department of Psychiatry.

Based on our work on the molecular mechanisms of common genetic diseases, I have been invited as a Faculty member of the World Health Organization Subcommittee on Haemophilia

Testing as well as a member of the subcommittee on Thalassaemia Control. The Division's laboratory has been named a WHO/WFH training centre in DNA diagnosis.

Research grants held. (1) Hong Kong University Research Grant & Wing Lung Bank Medical Research Fund, 1985-1986. Molecular mechanism of ß thalassemia in the Chinese. (2) Croucher Foundation Research Grant 1986-1989. Application of Recombinant DNA technology in genetic diseases - HK$1.795 million. (3) Croucher Foundation Research Grant, 1990-1992. Application of DNA technology in Haemophilias and neurogenetic diseases - HK$3.42 million. (4) Croucher Foundation Research Grant, 1993-1995. Application of DNA technology in Genetic Diseases and Blood Cancers - HK$1.14 million. (5) Research Grants Council, 1994-1996. Non-invasive Prenatal Diagnosis of Common Genetic Diseases in Hong Kong - HK$0.543 million. (6) F. S. Li Research Fund - HK$2.5 million.

Total research funding (1985-1995) - HK$9.5 million.

FUTURE DIRECTIONS

Our research has always been linked to our service needs. The current methods for prenatal testing of the common genetic diseases are relatively simple, reliable and accurate. A possible improvement that one would wish to achieve is a 'non-invasive' procedure. Our Division is putting significant effort in this area of research and has been given Research Grants Council funding to this aim.

There is also intensive research internationally on vectors and methods of gene therapy. Undoubtedly, in the next five to ten years, gene therapy will be a new treatment modality for many genetic as well as malignant disorders. The Department's BMT unit is ideal for clinical management of such patients and we hope the Division of Molecular Medicine will be able to play its role in lending laboratory support for generation of vectors and targetting genes etc.

As our knowledge of the molecular basis of diseases advances, the importance of Molecular Medicine in the MBBS curriculum should be recognised. It would be important to accord a few more lectures/clinics to this 'specialty'. At the postgraduate level, the Part I MRCP exam already has 25% questions on this area. The attitude of our clinical colleagues has been very heavily biased towards clinical practice. It is probably necessary to instill in them a more scientific approach, in order to generate greater interest in research. A 3-6 months' full-time rotation in the laboratory to allow them to acquire DNA techniques and familiarise themselves with the literature would be an appropriate start. This should perhaps be considered part of the basic physician training programme.

Staffing in the Division is limited, there is mainly technical support staff. It would be useful to establish a couple of more senior posts at the Scientific Officer/Lecturer grade so as to further develop this specialty. As this specialty is very much clinically-orientated, one would wish to appoint staff conversant in this aspect of applications, rather than basic research.

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Vivian N. Y. Chan

DIVISION OF NEPHROLOGY

The Division of Nephrology was established in 1980 as part of the Department of Medicine. Currently, it is staffed by the following nephrologists:

Dr. Ignatius K.P. Cheng, *MBBS PhD FRACP FRCP, FHKCP FHKAM (Medicine)*
Reader and Chief of Division

Dr. Michael T.S. Tsang, *MBBS, FRCP(E), FRCP(G), FHKCP FHKAM (Medicine)*
Co-chief and Senior Consultant in Medicine

Dr. W. K. Lo, *MBBS MRCP (UK) FHKCP, FHKAM (Medicine)*
Consultant in Nephrology

Dr. Daniel T.M. Chan, *MBBS, MRCP (UK), FHKCP, FHKAM (Medicine)*
Lecturer

Dr. B.Y. Choy, *MBBS, MRCP (UK), FHKCP, FHKAM (Medicine)*
Senior Medical Officer

Dr. C.Y. Lo, *MBBS, MRCP (UK), FHKCP, FHKAM (Medicine)*
Senior Medical Officer

Trainees

Dr F.K. Li, *MBBS, MRCP (UK)*
Medical Officer

Dr S.L. Lui, *MBBS, MRCP (UK)*
Medical Officer

Nephrologists who have worked and contributed to the activities and development of the Division from 1985-95 included:

Dr M.K. Chan, *MD, FRCP(E) FRCP, FHKCP FHKAM (Medicine)*

Dr P.C.K. Chan, *MBBS, MRCP (UK)*

Dr. W.C. Cheung, *MBBS, MRCP (UK)*

CLINICAL SERVICE

A unit specializing in the care of patients with end-stage renal disease (ESRD) was first formally established by the Department of Medicine in Tung Wah Hospital (TWH) in January 1980. Initially only haemodialysis (HD) service was provided. To cope with increasing patient load, continuous ambulatory peritoneal dialysis (CAPD) was introduced in March 1983. In the same month, in collaboration with the Government and University Surgical Units, renal transplantation (RT) was started in Queen Mary Hospital (QMH). A satellite dialysis centre, the Aberdeen Renal Dialysis Centre (ARDC) was established in August 1983 to provide haemodialysis service. CAPD was started at ARDC in August 1986. In February 1993, the renal service of the University and Government Medical Units and University Surgical Unit were integrated. In June 1995, ARDC was moved to QMH.

The renal service of the Division is located in wards K18N and part of K17N in QMH, providing 14 HD, 3 CAPD, and 10 RT/Renal beds, and in ward C8 in TWH where there are 11 HD, 4 CAPD and 24 Renal beds. A renal laboratory is located at K18N QMH.

The renal services at QMH and TWH form a network and staff of both units work closely together to provide an integrated service for patients suffering from ESRD on Hong Kong Island. General nephrology (Nep), HD and PD services are provided by both units while RT is confined to QMH. Renal patients requiring acute care are treated in QMH, while long-term rehabilitation is carried out in TWH.

By June 1995, the Division has trained a total of 924 PD patients and has performed 244 RT. It is currently caring for 100 HD, 421 PD and 308 RT patients. There are 8 out-patient clinics including 2 RT, 2 dialysis, 3 Nep and 1 SLE clinic, each of which sees 30 to 100 patients per week. The Division provides the largest networked renal service in Hong Kong.

EDUCATION

Undergraduate teaching for medical students is undertaken by our staff, with the assistance of

honorary clinical lecturers. The programme includes lectures, teaching clinics and bedside sessions.

The Division provides post-graduate education for medical graduates, nurses, and allied health workers of both public and private hospitals. Basic and Advanced Training Programmes in Medicine and Nephrology of the Hong Kong College of Physicians are provided, and comprise weekly renal grand rounds, biweekly renal biopsy meetings, X-ray meetings, case review sessions, journal clubs, and interhospital renal meetings. The programme for nurses and allied health workers includes lectures and seminars run by the Division, School of Professional and Continuing Education, Nursing Administrations of various hospitals, Hospital Authority and Hong Kong Society of Nephrology. Our medical post-graduate training programme has attracted a regular stream of mainland nephrologists to our Division since the mid 1980s, who have contributed to the clinical research activities of the Division.

The Division runs a weekly patient counselling service for ESRD patients. Our medical and nursing staff are actively involved in educational and social activities of renal patient support groups, charitable organisations, District Boards, and the Hong Kong Society of Nephrology. To facilitate patient education and counselling, a booklet entitled "How to cope with end-stage renal failure" was published by the Division in 1993. A "Nephrology Manual" was published in June 1995 to enhance the practical knowledge on the clinical practice of nephrology among students and trainees. A comprehensive nursing protocol on dialysis techniques and RT has also been produced by our nursing staff in 1995 to enhance quality assurance.

RESEARCH

The Division has undertaken active clinical and laboratory research since its establishment in the early 1980s, and has contributed significantly to knowledge in the field of nephrology, in particular on locally relevant clinical issues.

Clinical and immunological studies in glomerulonephritis

Studies on the clinico-pathological features of glomerular diseases have been carried out in collaboration with the Department of Pathology. Prospective therapeutic trials from the Division showed that antiplatelet agents and fish oil were of no benefit in IgA nephropathy, and that neither cyclosoporin A nor thymopentin induced long-term remission in steroid-dependent nephrotic syndrome. Hypolipidaemic agents, however, may potentially retard the progression of diabetic and non-diabetic renal diseases. On the treatment of lupus nephritis, our group was the first to demonstrate the efficacy and safety of a sequential immunosuppressive regimen.

On the immunopathogenesis of glomerulonephritis, we have defined the role of serum IgE and T cell-derived lymphokines in predicting steroid responsiveness in patients with nephrotic syndrome, the relative contributions of T and B cell subsets in isotype regulation in IgA nephropathy, and the role of anti-endothelial cell and anti-DNA antibodies in systemic lupus erythematosus (SLE). We have demonstrated that anti-DNA antibodies can bind to endothelial cells either indirectly via DNA or directly to cross-reactive molecules on the cell membrane.

We have also reported unusual glomerulonephritides which were of pathogenetic interest, such as those occurring in Castleman's disease, Kimura disease, and in patients under cytokine therapy.

Hepatitis in dialysis and renal transplant recipients

We were the first to examine the transplantation of kidneys from hepatitis B surface antigen positive (HBsAg+) donors into HBsAg negative recipients, and have shown that such practice is safe with passive or active immunisation. Our group was among the leaders in the investigation of the impact of the hepatitis C virus (HCV) in dialysis and renal transplant patients, and have contributed significantly to the understanding of the serological and clinico-pathological features of HCV infection. There are on-going therapeutic studies on HCV infection in renal patients.

Studies in peritoneal dialysis

The Division is recognised as a leading CAPD

centre in Asia, and has done extensive clinical studies in CAPD. Our published data on CAPD depict one of the most extensive single centre experience in the world. We have examined the cost-effectiveness of different CAPD treatment modalities. The excellent clinical outcome despite fewer PD exchanges compared to the West has attracted a lot of interest regarding the issue of dialysis adequacy.

We have reported the treatment of diabetic patients, as well as bacterial and non-bacterial peritonitis complicating CAPD. We pioneered the use of oral fluoroquinolones in the treatment of CAPD peritonitis. We also evaluated the use of different quinolones administered by different routes. On peritoneal function, we were the first to define the trans-peritoneal transfer of calcium and magnesium and the use of low calcium dialysate in CAPD patients on 3 daily exchanges. Factors affecting peritoneal lymphatic absorption and ultrafiltration, and the effects of intraperitoneal vitamin D3 on peritoneal macrophage function were also examined. We were among the first to report on the long-term use of subcutaneous recombinant human erythropoietin in the treatment of anaemia in dialysis patients and in thalassaemic patients with renal failure. Our studies on lipid metabolism in CAPD patients have demonstrated the therapeutic efficacy of the fibrate group of hypolipidaemic agents in this patient group.

Studies in other areas of dialysis

In collaboration with the Endocrine Division and the Clinical Biochemistry Unit, we have studied the mechanisms of propranolol-induced hypoglycaemia in haemodialysis patients. In collaboration with the Neurology Division, we evaluated the use of multi-modal neurophysiological assessment in dialysis patients. In a study conducted with the Division of Cardiology, we demonstrated the myocardial-suppressive effects of hypocalcaemia.

We have reported on our experience of aluminium bone disease, and have defined the use of bone densitometry in the evaluation of renal osteodystrophy. We have also alerted physicians to the common occurrence of herpes zoster and isoniazid encephalopathy in dialysis patients.

Studies in other areas of renal transplantation

A randomised long-term clinical trial comparing double and triple cyclosporin A-based immunosuppressive regimens in renal transplantation was conducted. We reported on the use of C-reactive protein in monitoring allograft rejection. Electrolyte and haematological abnormalities in renal transplant patients were also studied. A prospective study on the treatment of hyperlipidaemia after renal transplantation is underway, to reduce the long-term morbidity and mortality of this patient population. To explore the problems associated with renal transplantation using kidneys from executive prisoners, we have conducted a survey among three major transplant centres in Hong Kong. This study highlighted, for the first time, the increased patient mortality and morbidity associated with this type of transplant, which has proved crucial for nephrologists to formulate policies regarding this unconventional treatment modality.

We examined the role of testosterone in the pathogenesis of post-transplant erythrocytosis. Unusual complications after renal transplantation, including allograft rupture, lympho-proliferative disorder, and other malignancies, were also reported to alert physicians of their occurrence.

Studies in renal therapeutics and toxicology

We have demonstrated that nadolol had less adverse influence on residual renal function as compared to propranolol in hypertensive patients with moderate renal insufficiency. We have reported on the efficacy of oral fluoroquinolones in the treatment of complicated urinary tract infection. Our study in rats has demonstrated the protective effect of silymarin in gentamycin-induced nephrotoxicity. We have shown the detrimental effects of iron overload in patients with artificial heart valves. In a field study among the fishermen population, we demonstrated excessive lead exposure, which could be implicated in hyperuricaemia and renal dysfunction. In collaboration with the Department of Anaesthesiology, we have examined the renal effects of rectal diclofenic sodium in minor orthopaedic surgery.

FUTURE DIRECTIONS

We have just completed a 3-year prospective randomised study comparing nadolol, captopril, and ticlopidine in the prevention of disease progression in IgA nephropathy. The Division is engaged in a multicentre study on the use of cyclosporin A in the treatment of lupus nephritis. Clinical studies on the role of hypolipidaemic agents in the progression of diabetic nephropathy are being planned. Further studies on the role of anti-DNA antibodies in the pathogenesis of SLE will continue. We are examining the clinico-haematological features of cytomegalovirus infection in transplant recipients. Studies on HBV and HCV infection in renal patients are in progress. We will continue research in peritoneal dialysis, including the treatment of peritonitis and the impact of dialysis adequacy and nutrition on long-term patient outcome.

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† *Publications produced by staff whilst attached to or visiting other centres*

‡ *Publications produced by staff while employed at other centres before joining the Department*

* *Publications in non-indexed journals*

Ignatius K.P. Cheng and Daniel T.M. Chan

DIVISION OF NEUROLOGY

The Division of Neurology was established in 1981 as part of the Department of Medicine. Currently, it is staffed by:

Dr. Y.L. Yu, *MD, FRCP, FRCP(E), FHKCP, FHKAM(Medicine)*
Reader and Chief of Division

Dr. Leonard S.W. Li, *MBBS, MRCP(UK), FACRM, FAFRM(RACP), FHKCP*
Consultant in Rehabilitation Medicine

Dr. Jason K.Y. Fong, *MBBS, MRCP(UK), FHKCP, FHKAM (Medicine)*
Senior Medical Officer

Dr. S.L. Ho, *MRCP(UK), MD*
Lecturer

In the past decade, the Division was also served by the following neurologists:

Dr. Y.W. Chan, *MBBS, MMED(Syd), FRCP(E), FRCP(G), FHKAM(Medicine)* (1985)

Dr. C.M. Chang, *MBBS, FRCP(E), FHKCP, FHKAM(Medicine)* (1989-1992)

Dr. C.Y. Huang, *MBE, BSc(Syd), MBBS, MMed(Sing), FRACP, FHKCP, FHKAM(Medicine)* (1981-1986)

Dr. K.F. Ko, *MBBS, MRCP(UK), FHKCP, FHKAM(Medicine)* (1993-1995)

Dr. Edmund K.W. Woo, *MBBS, FRCP(E), FRCP(G), FHKCP, FHKAM(Medicine)* (1985-1988)

The division is also staffed by medical officers who are on medical training rotation and by 2 research assistants.

CLINICAL SERVICE

Patient care is based at Queen Mary Hospital (QMH) and Tung Wah Hospital (TWH). About 4000 acute cases are admitted into QMH annually, 40% with stroke, 15% with epilepsy and the rest exhibiting the full spectrum of neurological disorders. The facilities at QMH include a 19-bed purpose-designed Neurology Ward (Ward B7) with EEG telemetry and a comprehensive Neurodiagnostic Laboratory. There is close collaboration with the neurosurgeons whose wards and operation theatre are situated at the same site on the 7th floor of the Main Hospital Building. Neuro-imaging facilities include magnetic resonance imaging, computed tomography, doppler, digital subtraction angiography, and single photon emission tomography.

At TWH, there are 24 beds for acute and subacute neurological cases, a Stroke Rehabilitation Unit (40 beds plus a Day-Patient Centre) and a Laboratory for Clinical Neurophysiology. The emphasis at TWH is on movement disorders, and rehabilitation of stroke and other chronic neurological diseases.

The Out-patient Clinics (General Neurology, Epilepsy, Stroke, and Movement Disorders) operate at Sai Ying Pun Jockey Club Polyclinic and TWH. About 700 new and 8000 old cases are seen annually. There is also a Botulinum Toxin Clinic at QMH where about 25 patients with blepharospasm, hemifacial spasm and cervical dystonia are seen at each monthly session.

Over the years, the Division has established a solid reputation in patient care and has become the major referral centre for patients with neurological diseases. Recent additions to the service include programmes for refractory epilepsy, sleep study, and neurorehabilitation (besides that for stroke rehabilitation).

EDUCATION

Undergraduate teaching is largely undertaken by our staff, with the assistance of honorary lecturers. The core curriculum is in place and the modes of teaching include lectures, clinics and bedside sessions.

The Division participates in the Basic Physician Training Programme and the Neurology Training Programme of the Hong Kong College of Physicians. Postgraduate training is given in ward

rounds, 3-monthly neurological rotations and weekly conferences. These meetings are well-attended by neurologists, neurosurgeons, radiologists and trainees in Neurology and Internal Medicine.

In addition, postgraduates from China regularly join the Division for clinical training and research for higher degrees. Teaching is also undertaken for dental students, postgraduates of the Clinical Psychology course, and students of the Speech and Hearing Sciences course. Education of the patients and the community is carried out via information leaflets on major neurological diseases such as stroke and epilepsy. Staff members of the Division are advisors in various public health exhibitions, self-help groups and health education bodies.

To help students and trainees better grasp the essence of neurology, a book entitled "Neurology in Practice" was published by the Division in 1994. Reference materials on neurological disorders and local disease profiles are also freely available on the Neurology Ward.

In recent years, there has been a substantial improvement in the standard of Neurology among students. There is also a much greater awareness among practitioners of the service offered by neurologists.

RESEARCH

In the 1980s when the disease pattern and normal values of the normal population had not previously been documented, our emphasis was on clinical research. However, small scale laboratory research was also undertaken in collaboration with scientist colleagues. The data acquired have provided insight into clinical management and laid the groundwork for further research. Research in the 1990s is targeted at cerebrovascular disease, epilepsy and movement disorders, with emphasis on clinical trials and laboratory-based studies.

Major Research Projects

Cerebrovascular disease. Stroke is the most common neurological disease, the third leading cause of death and the major source of disability in the elderly. Thus, our main efforts have been directed to this area. A Stroke Data Bank has been established to accurately document stroke subtypes, risk factors and outcome. An important finding is that lacunar infarct and deep cerebral haemorrhage, which reflect small cerebral vessel disease, are more prevalent in Hong Kong Chinese compared with Caucasian populations. We have also clarified the issue that a high glucose level at admission is a stress response to a severe stroke rather than a cause for poor outcome. The clinical picture and the underlying pathology of the various lacunar syndromes, 'cerebral steal' from arteriovenous malformations, and subcortical arteriosclerotic encephalopathy have been delineated. The beta-thromboglobulin level has been shown to be elevated in thrombo-embolic infarcts rather than lacunar infarcts, thus reaffirming the important role of platelet aggregation in the former. We have also shown conclusively that intravenous glycerol does not confer any benefit in acute cerebral haemorrhage or cortical infarction.

Dysphasia in the Chinese. Chinese is an ideogram language, as opposed to English which is a phonemic language. The language disorders in the Chinese are therefore substantially different from those in English-speaking subjects. Stroke affecting the speech area in the dominant cerebral hemisphere is not uncommon and thus provides ample opportunities for the systematic study of dysphasia. The pioneer work of an Assessment Battery for Chinese Dysphasics has been completed and a number of theoretical issues have been identified.

Spinal cord disorders. Apart from trauma, cervical spondylotic myelopathy is the most common cervical spinal cord lesion in subjects who are middle-aged and above. The clinical picture, pathogenetic mechanisms and the roles of somatosensory evoked potentials and computed tomography in this condition have been elucidated. A related condition, known as ossification of the posterior longitudinal ligament, has also been thoroughly investigated. In both conditions, the sagittal diameter of the cervical spinal canal is the crucial factor for cord damage and control values for the Chinese population have been established.

Multiple sclerosis (MS). A territory-wide investigation shows that MS is a rare disease in Hong Kong Chinese, with a prevalence of 8.8 per million population. This figure is similar to other Oriental populations but much lower than in Caucasians. The symptomatology and the clinical course are however the same as elsewhere. Compared with Caucasian patients, two further differences exist, viz. a low detection rate of oligoclonal immunoglobulin in the cerebrospinal fluid, and a lack of association with Human Leucocyte Antigens (HLA), DR2 or others, at the serological level. Based on these observations, a hypothesis on the still uncertain pathogenesis of MS has been proposed. We postulate that genetic factors coded within the Major Histocompatibility Complex determine the response of the central nervous system to immunological challenge. We believe the genes are related to those determining a variant of HLA-DR2. The Chinese are less genetically susceptible to MS and hence develop abnormal immune responses to a much smaller extent.

Myasthenia gravis (MG). The Myasthenia Gravis Research Group was formed in 1986 to launch a territory-wide study. This work has generated a comprehensive Data Bank on MG. The similarities of the disease in Hong Kong Chinese with Caucasian patients include a prevalence of 63 and an incidence of 4 per million population, a low familial occurrence, female predominance in adult patients, and its clinical features. The distinct features of MG in Hong Kong Chinese are the lack of female predominance in paediatric patients, a single peak for the age of onset in the first three decades, the higher proportion of paediatric patients and patients with restricted ocular disease. Moreover, the detection rate of acetylcholine receptor antibody in our patients is low, and there is a strong association with the HLA-DR9 antigen. These two observations are particularly notable in juvenile onset MG with restricted ocular involvement. Such data support the argument for different clinical expressions of MG in different racial groups, and there is good evidence that these are genetically determined.

Epilepsy. This is a common neurological problem affecting mainly young people in their formative and productive years. Effective control of seizures with anticonvulsants is now possible. Our research has specifically addressed the issue of therapeutic drug levels and seizure control. Consequently, we recommend that drug level is secondary in importance to clinical observations of seizure frequency and the presence of side effects. The long-term effects of phenytoin on neural function have also been studied by recording brain stem auditory evoked potentials. It is concluded that phenytoin exerts a subclinical peripheral effect (at the cochlear and auditory nerve) as well as a central effect (at the brain stem), particularly when administered at high dosages.

Many patients with focal epilepsy are refractory to antiepileptic drug treatment. Localisation of the epileptic focus is essential in the planning for possible surgical resection. With recent introduction of video-EEG telemetry, studies are being carried out to look at the electroclinical features of various epileptic syndromes. For patients with newly diagnosed epilepsy, transcranial magnetic stimulation study is performed to elucidate the underlying pathophysiology of cortical inhibition and excitation. In addition, drug trials involving new anti-epileptic drugs are currently underway.

Infections. Infection of the central nervous system remains a serious and relatively common problem, even though effective antimicrobials are available. Opportunistic infections have become more prevalent because of the increasing number of immunocompromised patients, whether due to the disease or drug therapy. The diagnosis of these infections can be elusive. We have documented the clinical picture of two opportunistic infections, namely cryptococcosis and tuberculosis. Furthermore, we have discovered that a relatively common bacterial meningitis in Hong Kong is occupation-related. *Streptococcus suis* meningitis is particularly liable to occur in subjects handling pigs or pork. It has the same clinical features as other acute bacterial meningitides but severe bilateral deafness is an almost invariable complication.

Neoplasms. The nervous system is frequently a secondary site of involvement by other malignancies. We have studied the characteristics of spinal cord and root involvement in patients

with multiple myeloma. In the Chinese, non-Hodgkin's lymphoma is more common than Hodgkin's lymphoma and we have documented the varieties and outcome of neurological involvement. Nasopharyngeal carcinoma is a common malignancy locally. At an early stage, it is largely curable with radiotherapy. However, the long-term effect of radiotherapy on the brain, and especially on the temporal lobes and hypothalamic-pituitary axis, is a serious yet hitherto little described complication. We have brought this to the attention of practitioners and recommended means to reduce the incidence and severity of this complication.

Neurodegeneration and Movement Disorders. Territory-wide studies have been conducted for Huntington's disease and motor neurone disease. The prevalence of Huntington's disease in Hong Kong is low at 2.5 per million, which is similar to the figure reported in Japan. We have also delineated the clinical picture and the gene defects. Motor neurone disease is more common, but still has a low prevalence of 9.5 per million. Its clinical picture is similar to that in other population, although presentation with bulbar involvement appears to be more frequent.

The prevalence of Parkinson's disease in Hong Kong has not been investigated, but extrapolation of data from Mainland China indicates that about 2500 patients exist territory-wide. This number is expected to increase with ageing of the population. A collaborative study with the Department of Physiology is underway to examine the kinematics of essential tremor and Parkinson's disease using the facilities at the Neurodiagnostic Laboratory at TWH. Phenotypic and molecular studies of xenobiotic enzymes in Parkinson's disease are being conducted in collaboration with various groups in the UK. There is a marked preponderance of hemifacial spasm in our Botulinum Toxin clinic. Research into hemifacial spasms, including its neurophysiological aspects, is planned.

FUTURE DIRECTIONS

Health planners and the community in Hong Kong have become increasingly aware of the crucial need of an effective neurology service. There is a growing number of effective diagnostic and therapeutic options for neurological disorders which were previously not available. The division is already well established as a centre of referral and will seek to expand its subspecialty clinics in movement disorders, epilepsy and dystonia. Plans for an acute stroke unit have been put forward in line with the strategy of the Hospital Authority to reduce the mortality and morbidity from strokes. The initial results of neurosurgery for refractory epilepsy has been encouraging and future recruitment to this programme is planned.

The Division is planning to update its book "Neurology in Practice" with a second edition. It has plans to make Neurology an attractive choice for undergraduates and trainees for future recruitment. A recent substantial donation to the Division has allowed for the setting up of a scholarship to fund training in Neurology for medical, nursing, and allied health staff.

Apart from a contribution to neurology literature, the research projects mentioned above have generated a solid data base on neurological diseases in Hong Kong. The differences in disease patterns and characteristics between our population and others, in particular, the Caucasians, have provided us with greater insight into the pathogenesis and aetiologies of these diseases. We are now embarking on larger scale clinical research into problems relevant to Hong Kong, and developing our basic research into neurological diseases. The 1990s has been declared "Decade of the Brain". New technologies have increased our understanding of the nervous system and will have immense implications for future therapy of neurological diseases. We foresee that disorders of the nervous system will constitute an urgent and demanding problem for the society of Hong Kong. However, the organization and resources available in individual departments of our University are not adequate to meet this challenge. It was against this background that a group of scientists and clinicians in our University combined their efforts and resources to establish the Neuroscience Research Centre last year. We envisage that these recent developments in the infrastructure for research will lead to greater contribution to the

international effort in the prevention and treatment of diseases of the nervous system.

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† *Publications produced by staff whilst attached to or visiting other centres*

‡ *Publications produced by staff while employed at other centres before joining the Department*

* *Publications in non-indexed journals*

Y.L. Yu, Jason K.Y. Fong and S.L. Ho

DIVISION OF RESPIRATORY MEDICINE

The Division of Respiratory Medicine is currently staffed by:

Physicians

Dr. W.K. Lam, *MD, FRCP, FRCP(E) FRACP, FHKCP, FHKAM (Medicine)*
Reader and Chief of Division

Dr. Mary S.M. Ip, *MD, FRCP(E), FHKCP, FHKAM (Medicine)*
Senior Lecturer

Dr. Jane C.K. Chan, *MD, Dip Am Board, FHKCP, FHKAM (Medicine)*
Lecturer

Trainees

Dr. W.M. Chan, *MBBS, MRCP(UK)*
Medical Officer

Dr. M.T. Cheung, *MBBS, MRCP(UK)*
Medical Officer

Dr. S.P. Lam, *MBBS, MRCP(UK)*
Medical Officer

Past staff (since 1985)

Dr. S.Y. So, *MBBS, FRCP(E), FHKCP, FHKAM (Medicine)*

CLINICAL SERVICE

Respiratory diseases account for a significant number of acute admissions in Queen Mary Hospital (QMH), common ones being chronic bronchitis and emphysema, asthma, pneumonia in immunocompetent as well as immuno-compromised hosts, and lung cancer. The Division provides more focused care for respiratory patients admitted acutely or electively through tertiary referrals in a subspecialty unit of 11 beds. Through solid interests and achievements in clinical research, the Division has established the biggest mutidisciplinary clinical groups in management of lung cancer, bronchiectasis and pneumonia in immunocompromised hosts in Hong Kong. Recently, we have organized comprehensive respiratory services for patients with chronic bronchitis and emphysema through linking the acute respiratory services in QMH with pulmonary rehabilation programmes in Grantham Hospital and Tung Wah Hospital. In June 1995, the Division has commenced operation of a 5-bed Intermediate Care Area, with the aim of providing optimal care for patients who need intensive respiratory monitoring or therapy including mechanical ventilation, but who do not require full intensive care facilities.

The Division is fully committed to patient care in the 6-bed Medical Intensive Care Unit, which has a wide spectrum of critically ill patients with the common need of high-tech monitoring, intensive medical and nursing attention, and close therapeutic titration. The Division has been actively working towards the establishment of a multidisciplinary team led by critical care physicians for enhancement of clinical services and the further development of critical care medicine as a subspecialty.

The Respiratory Laboratory provides skilled technical support and facilities for a comprehensive range of service including lung function tests (spirometry, lung volumes, diffusing capacity), body plethysmograph, exercise tests, bronchial challenge, skin allergy tests, nasal continuous positive airways pressure support and fiberoptic video-assisted bronchoscopy, disinfection of ventilators. Other important investigatory tools are available from other Divisions or Departments in QMH, including computerized tomography, radionuclide perfusion-ventilation scans, imaging, ultrasonography, nuclear magnetic resonance imaging and nocturnal polysomnography.

Outpatient services operate in both Sai Ying Pun Out-patients Clinic and QMH. In particular, there are dedicated clinic services for regular follow up a large number of patients with lung cancer, asthma, bronchiectasis, COPD and sleep-related breathing disorders. Patient-centered educational

activities are conducted by a respiratory nurse. With the commencement of the Medical Ambulatory Care Unit at Queen Mary Hospital in September 1995, the subspecialty clinics will further enhance their services in respiratory therapy, such as structured asthma patient education, teaching sessions on chest physiotherapy for chronic bronchial infections, and support for home ventilation.

Over the years, the Division has pioneered the implementation of many new diagnostic and therapeutic advances in respiratory diseases in Hong Kong, including fiberoptic bronchoscopy, oxygen concentrator for long-term home oxygen therapy, chemotherapy for small cell and non-small cell carcinomas, continuous positive airway pressure treatment for obstructive sleep apnoea, invasive and non-invasive home mechanical ventilation in chronic respiratory failure. The Division has also been the prime force in the formation of the first mutidisciplinary Lung Transplant Group with the establishment of a clinical protocol in preparation for lung transplantation in Hong Kong.

Through its long-standing record of excellence in patient care and continuous efforts in application of scientific advances in patient management, the Division is regarded as a leading respiratory referral center in Hong Kong.

EDUCATION

Undergraduate teaching of medical students and dental students is undertaken largely by our staff, with assistance from honorary lecturers. The modes of teaching include lectures, audiovisual teaching, bedside teaching, integrated sessions, tutorials and elective studentships. A book entitled Clinical Respiratory Medicine, targeting mainly at medical students, is in preparation.

The Division has been very active in postgraduate teaching. At the departmental level, we have been conducting regular journal clubs, seminars, joint radiology-respiratory rounds. For education and guidance of trainees, the Division has written and collated clinical guidelines, protocols and updated literature on respiratory and critical care medicine. The Division has also built up educational material for staff use, such as mini-library collections and imaging library collection on respiratory and critical care medicine.

At the inter-hospital and inter-disciplinary level, the Division has organized structured courses for medical trainees and nurses on respiratory and critical care medicine. Members have also participated regularly as teachers in various training programmes organized by other professional bodies or institutes, such as the Advanced Course in Surgery, Certificate Intensive Care Nursing Course, Respiratory Nursing Course, Bachelor of Nursing Degree Course and Hong Kong Association of Pharmacuetical Industry Training Programme.

The Division has played a key role in the formulation of postgraduate subspecialty training programmes for respiratory and critical care medicine of the Hong Kong College of Physicians. Members participate in the Basic Physician Training Programme and other teaching activities for local trainees.

At the international level, postgraduate fellows from China, Southeast Asian countries, United Kingdom, Canada and Macau have joined the Division for clinical training and research for higher degrees. We are the key academics establishing the first post-1979 linkage with respiratory physicians and academics in China.

On a more individual basis, staff members of the division have played active roles in the organisation of the MRCP examination in Hong Kong, in the examination of higher degree candidates, in the formulation and implementation of education and accreditation policies of the Hong Kong College of Physicians, in the participation in public health education through advisory committees or delivery of talks, interviews, and mass media programmes for lay public. They also are or have been editorial board members/reviewers of a number of medical journals including *Journal of Hong Kong Medical Association, The Journal of Infectious Diseases, JAMA (SEA), Asia-Pacific Journal of Allergy and Immunology, Lung Cancer,* and *Respirology.*

RESEARCH

Bronchial asthma & chronic airflow obstruction. Asthma and chronic obstructive airways are very common diseases. About 10% of children and 2-5% of adults in Hong Kong have bronchial asthma. Our research has focussed on the following areas.

1. Studies on asthma mortality, qualitative and quantitative aspects of drug utilisation in asthma, patient inhalation techniques, therapeutic trends in Hong Kong, providing information on local epidemiology and guiding local strategies in management of asthma.
2. Effects of anti-asthmatic drugs and acupuncture on exercise-induced, allergen-induced or nocturnal asthma; to elucidate the pathogenesis of asthma.
3. Inflammation and the role of steroid in chronic airflow obstruction.
4. Changes in regional ventilation during histamine bronchial challenge in stable asthma.
5. Formaldehyde and colophony-induced asthma.
6. The effect of long-term inhaled steroids on calcium metabolism and bone mineral density in asthmatic patients.

Bronchiectasis. Although cystic fibrosis is not seen in the Chinese, bronchiectasis is a common respiratory disease in Hong Kong. Our research in collaboration with Departments of Microbiology and Biochemistry has included:

1. Clinical and laboratory studies on various aspects of airway inflammation in bronchiectasis, including pulmonary function, bronchial responsiveness, inflammatory cells and mediators, and the effects of antibiotic and anti-inflammatory drug therapy.
2. Systemic effects of inflammation.
3. Microbiology in exacerbations and choice of antibiotics: comparison of beta-lactams and quinolones.
4. The role of cellular modulation of proteoglycan metabolism in lung tissue destruction in chronic bronchial infections.

Lung cancer & cytotoxic chemotherapy. Lung cancer is the commonest cause of cancer deaths in both men and women in Hong Kong, accounting for over a quarter of all cancer deaths in recent years. Through a multidisciplinary approach, we pioneered studies in:

1. Cell typing by cytology versus histology via fibreoptic bronchoscopy (with Department of Pathology).
2. Epidemiology: we identified that the mortality rate of lung cancer in our female patients is among the highest in the world, and that about 60% of the patients are non-smokers and have adenocarcinomas. In collaboration with Departments of Community Medicine, Pathology, Microbiology and Surgery of this University, TB & Chest Unit, Grantham Hospital, and the Department of Biology, HKUST, we have studied the following to elucidate the possible aetiological factors in our female patients:
   a. environmentally-inhaled agents: passive smoking, incense burning, kerosene stove cooking
   b. lung scarring from previous TB lesions
   c. HLA antigens
   d. K-ras oncogenes
   e. p53
3. Use of L-myc and GST μ genotypes in predicting prognosis in non-small cell lung cancer (with TB & Chest Unit, Grantham Hospital, and Department of Biology, HKUST)
4. Use of beta-carotene in amelioration of side effects of chemotherapy and radiotherapy (with Department of Community Medicine and Institute of Radiotherapy and Oncology).
5. Cytotoxic chemotherapy protocols - MACC, CAV and DDP-VP16 regimens for small cell lung cancer and FAM, DDP-VP16 regimens for non-small cell lung cancer. Most recently, we have studied high dose cytotoxic drugs (mitomycin-C, ifosphamide and cisplatinum) in the treatment of Stages III & IV non-small cell lung cancer in conjunction with recombinant human granulocyte-macrophage colony stimulating factor.

Respiratory infections (including tuberculosis). In Hong Kong, pneumonia is the fourth

commonest cause of death and tuberculosis remains prevalent with a notification rate of about 110/100,000 population (compared to about 10/100,000 population in Western countries). As the Queen Mary Hospital is a referral centre for haemic malignancies, bone marrow, renal and liver transplant, we see in addition a large number of patients with opportunistic infections and pneumonia. Research studies have included:

Tuberculosis (with Department of Microbiology)

1. Diagnosis
   - role of fibreoptic bronchoscopy in sputum smear-negative TB
   - role of serological diagnosis for TB by assaying IgG Ab to PPD by ELISA technique
2. Clinical studies on endobronchial TB and unusual clinical and radiological features; unusual TB-drug toxicities
3. Prevalence in the non-HIV infected immunocompromised patients
4. Single sample acetylator phenotype test using isoniazid in Chinese patients with TB (with TB & Chest Unit, Grantham Hospital, and University of Wales, UK)

Other infections (with Department of Microbiology)

1. Pattern of bacterial isolates and their antibiotic susceptibility in chronic bronchitis exacerbations.
2. Respiratory tract as major reservoir for EB-virus by detection of EBV DNA by dot hybridization in washed exfoliative cells from bronchial lavages of patients.
3. First report and epidemiologic study of melioidosis in Hong Kong and its antibiotic susceptibility.
4. Infections in immunocompromised hosts (neutropenic patients)
   - defining the most appropriate antimicrobial proplylaxis and treatment regimens for pneumonia and septicaemia
   - prediction and diagnosis of pneumonia in bone marrow transplant recipients

Miscellaneous

1. First reports of asbestos-related mesothelioma and asbestosis in Hong Kong.
2. First 9 cases of sarcoidosis reported in Hong Kong.
3. Drainage for pneumothorax: role of suction and time of tube removal.
4. Pulmonary physiology - lung function in beta-thalassemia major, ankylosing spondylosis, scoliosis (with Department of Orthopaedics) and bone marrow transplant recipients.
5. Predicting post-operative pulmonary complications in oesophago-gastric cancer surgery (with Department of Surgery)
6. Sleep apnoea in Hong Kong Chinese and its incidence in Chinese hypertensive subjects (with Department of Psychiatry)
7. Myasthenia gravis (with Division of Neurology and Department of Pathology): epidemiological, clinical and immunological studies of myasthemia gravis in Hong Kong Chinese.
8. Critical Care Medicine
   - evaluation of APACHE II method in predicting intensive care outcome (with Department of Surgery)
   - evaluation of cost-effective utilization of Respiratory Intermediate Care Area

FUTURE DIRECTIONS

1. Developing
   a) ambulatory respiratory service in asthma, bronchiectasis, home ventilation support etc
   b) high dependency (intermediate care) unit and critical care unit, with the ultimate aim of developing critical care medicine as a medical subspecialty
2. Implementing core and optional curricula for undergraduates and structured teaching for respiratory physician trainees
3. Developing more basic research in our established fields
4. Establishing closer links with China and overseas institutes - e.g. we are in the process of establishing a formal exchange programme with the Department of Pulmonary & Critical Care Medical of the Boston University, USA

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† *Publications produced by staff whilst attached to or visiting other centres*

‡ *Publications produced by staff while employed at other centres before joining the Department*

* *Publications in non-indexed journals*

W.K. Lam, Mary S.M. Ip and Jane C.K. Chan

DIVISION OF RHEUMATOLOGY

Rheumatology is a developing sub-specialty both within the Department of Medicine and in Hong Kong. Currently, the team consists of one full-time academic staff, 2 honorary lecturers, 2 post-membership career trainees, one full-time technician and one research assistant.

Staff who have contributed to the achievements of the Division during the past decade include the following:

Current members

Physicians

Dr. R.W.S. Wong, *MBBS, FRCP(E), FRCP(G), FHKCP, FHKAM (Medicine)*
Consultant and Chief of Division

Dr. C.S. Lau, *MD (Hons), MRCP(UK), FHKCP, FHKAM (Medicine)*
Lecturer

Trainees

Dr. K.W. Lee, *MBBS, MRCP (UK)*
Medical Officer

Dr. C.C. Mok, *MBBS, MRCP (UK)*
Medical Officer

Past members

Dr. K.L. Wong, *MD, MRCP(UK), FHKCP, FHKAM (Medicine)*

Dr. K.H. Chan, *MBBS, FRCP(E), FHKCP, FHKAM (Medicine)*

CLINICAL SERVICE

The Division is responsible for the investigation and management of patients with various rheumatic diseases on both in- and out-patient basis. There is one General Rheumatology Clinic in Tang Chi Ngong Hospital and one in Sai Ying Poon Polyclinic Hospital. The average patient attendance at each of these 2 clinics is 70 per week. In addition, there are 2 Rheumatology Clinics (Dr. RWS Wong) and one Special Rheumatology Clinic (Dr. CS Lau) in Queen Mary Hospital. An average of a further 70 patients are seen at these 3 clinics each week. An alternate week Combined Orthopaedic and Rheumatology Ankylosing Spondylitis Clinic with an average attendance of 30 patients is also in place at the Duchess of Kent Hospital in Sandy Bay. A wide spectrum of rheumatological disorders ranging from soft tissue rheumatism to various forms of arthropathies, connective tissue disorders and vasculitides are seen at these clinics. For arthritis patients requiring surgical intervention, there is close collaboration with the orthopaedic surgeons. Thus, patients from the Tang Chi Ngong Clinic can be referred directly to Dr FK Ip of the Pamela Youde Nethersole East Hospital and those from the Sai Ying Poon are seen by University Orthopaedic Surgery staff in the same clinic.

In-patient treatment is based both at the Queen Mary Hospital and the McLehose Medical Rehabilitation Centre (MLMRC) in Sandy Bay. The MLMRC has a good setup for the multi-disciplinary management of patients with chronic arthritis with facilities for physical therapy, occupational therapy and orthotic and prosthetic appliances. Help and advice from medical social workers, clinical psychologists and orthopaedic surgeons are also available.

As most rheumatic disorders are chronic and disabling, patient education is an essential part of their rehabilitation process. Public education is also needed to enhance the community's awareness of our patients' plights. Both are being accomplished through our Division's involvement in the various rheumatic disease patient self-help groups in Hong Kong. These include the Hong Kong Lupus Association, Hong Kong Rheumatoid Arthritis Association, Ankylosing Spondylitis Self Help Group and the Alliance for Patient's Mutual Help Organisation. There is also participation in public health exhibitions and lectures as well as contribution of published articles on related issues in the media.

There are also close links between the Division

and the Hong Kong Society for Rehabilitation and staff members are advisors of the Society's recently set up Community Rehabilitation Network and Vocational Re-training Services for Physically Disabled Persons.

EDUCATION

Undergraduate clinical teaching in Rheumatology takes the format of regular lectures (one in Immunology and 6 in Rheumatology), small group tutorials and seminars as well as teaching at bedside and specialist clinics. In addition, there are 2 Integrated Teaching Sessions each year on AIDS and Management of Rheumatoid Arthritis. We also supervise elective medical students, local and overseas, in Rheumatology. Besides teaching undergraduate medical students, the Division also takes part in the teaching of undergraduate dental students (2 lectures), BSc (Immunology) students (2 lectures and 2 tutorials) and nurses (2 lectures).

Postgraduate training in Rheumatology has changed much over the last few years. There is active participation in the Basic Physician and Rheumatology Specialist Training Programmes of the Hong Kong College of Physicians (HKCP). Dr. RWS Wong is the chairman while Drs. CS Lau and KH Chan (Honorary Lecturer) are members of the College's Subspecialty Advisory Committee in Rheumatology. A quarterly Inter-hospital Rheumatology Meeting was set up in 1992 and other postgraduate teaching activities have since been in place. These include a weekly Rheumatology Round, combined Rheumatology/ Radiology Meeting, combined Rheumatology/ Histopathology Meeting, Clinical Immunology Meeting and Journal Club. These meetings are attended by physicians, clinical immunologists and rheumatology trainees from Queen Mary Hospital as well as other district general hospitals and contribute to part of their training accreditation. Other postgraduate teaching commitments include small group tutorials and bedside teaching for local HKCP/Royal College of Physicians (UK) diploma examination candidates. The Division also contributes questions for the written paper in this examination. There are also 3 regular lectures for licentiate doctors.

Through the Division's involvement in the Hong Kong Society of Rheumatology, we have been able to extend postgraduate rheumatology training to a broader group of doctors, notably private general practitioners. Regular meetings have been organised and renowned local and overseas rheumatologists were invited to speak at these meetings.

RESEARCH

Due to understaffing of academic members of the Division, research in rheumatology was relatively scarce in the 1980's. There is, however, improvement in recent years with support from the Department and successes in bidding for competitive research grants. Basic research directions are being established. Collaborative links with other clinical and pathology departments of the University as well as many rheumatology centres overseas have also been set up. Most of the projects are yielding encouraging results and have been selected for presentations at various major regional and international rheumatology conferences. Further expansion is envisaged. Research in rheumatology, past and current, is summarised below:

Systemic lupus erythematosus

Systemic lupus erythematosus (SLE) is an autoimmune disorder characterised by a profound disturbance of immune mechanisms. It typically affects female of reproductive age and may manifest with multi-organ involvement. Because of these, SLE has always stimulated interests from researchers of various disciplines.

Clinical features of SLE in Hong Kong have been studied. Thus, the annual incidence of this condition presenting to the Queen Mary Hospital and the Nethersole Hospital was estimated as 0.13%. The clinical pattern of this disease such as patients' initial presentation, course of illness, response to treatment and development of complications to treatment have been well documented. Particular emphasis was made on major organ complications of SLE. Prospective studies on the neurological manifestations, cardiac abnormalities and assessment using

advanced echocardiographic techniques, development of acute severe thrombocytopenia and clinical manifestations of patients who possessed the anti-phospholipid antibodies have been carried out. A study of the mechanism of thrombosis in patients with SLE and anti-phospholipid antibody syndrome was completed recently and evidence of vascular damage, abnormal plasma fibrinolysis, activated platelets and white cells were found in these patients. Correction of these abnormalities may improve prognosis.

Since SLE predominately affects young females, the outcome of pregnancy in these patients has been a major concern. A prospective study was therefore carried out and it showed low maternal and fetal morbidity and mortality rates can be achieved with close maternal monitoring and good neonatal supportive care.

Recent studies have concentrated more on the aetiology and pathophysiology of SLE. Immunogenetics of this condition were studied and HLA B5 was found to be associated with the presence of other autoimmune diseases while HLA DR2 was associated with the presence of anti-Ro antibody. Acetylator status and the development of SLE was studied but no significant association was found. An infective agent(s) has been suggested to play a role in the aetiology of SLE but such an agent(s) has remained elusive. Cytomegalovirus and Ebstein Barr virus were examined but neither was found to be associated with the onset or relapse of SLE. On the other hand, susceptibility to this condition may be linked to a deficiency state in mannose binding protein, a recently characterised lectin which is capable of activating the complement pathway. Results from this study have generated many follow-up projects which are currently underway. Other possible aetiological factors such as defective apoptosis are also under investigation.

Whatever the cause of SLE, there are widespread changes in the patient's immune system. Increased T-lymphocyte activity was suggested by the demonstration of increased interleukin-2 receptor expression on peripheral lymphocytes of these patients. The level of soluble interleukin-2 receptor in serum correlated with clinical disease activity. The role of B-cells in SLE has also been studied. Results from a cross-sectional study on CD5+ve and CD5-ve B-lymphocytes suggested excessive production of pathogenic anti-dsDNA antibodies by CD5-ve B-cells may be due to diminished CD5+ve B-cell activity.

The pathogenic mechanism of complications of SLE is due mainly to auto-antibody production, immune complex formation, complement activation and consequent vasculitis. Measurement of complement degradation products and factor VIII von Willebrand factor antigen (vWF), an endothelial product, was assessed as markers of disease activity. Both showed significant correlation with fluctuation of disease activity but plasma vWF measurement appeared to be more clinically applicable.

Other ongoing SLE projects include a multi-centre study on lupus nephritis therapy and prevention and treatment of steroid induced osteoporosis.

Raynaud's phenomenon and systemic sclerosis

Raynaud's phenomenon (RP) may be primary or secondary, mostly to connective tissue disorders. Patients characteristically complain of pain and blanching of fingers following cold exposure and emotional stress. Most of the related work aimed (1) to determine the pathophysiological role of the haemostatic systems in primary and secondary RP and (2) to explore the potential for treatment with manipulation of the arachidonic acid (AA) pathway in favour of anti-thrombotic and vasodilatory effects. Our previous studies clearly demonstrated the key aetiological role of abnormal haemostasis in RP, particulary those with the secondary form such as systemic sclerosis. These patients had endothelial dysfunction in addition to platelet and white cell activation which occurred in all RP patients. It was likely that most of these abnormalities were a consequence rather than a cause of RP. Nevertheless, such changes might worsen the condition by further decreasing digital blood flow. Correction of these changes can be achieved through manipulation of the AA pathway. The effects of direct intravenous infusion of prostacyclin, oral and intravenous administration

of prostacyclin analogues and thromboxane A2 receptor blockade were investigated. All were shown to have potential therapeutic value.

Rheumatoid arthritis

Rheumatoid arthritis (RA) is a chronic disabling inflammatory polyarthritis. Its incidence in Hong Kong was estimated as 0.12% in an earlier study. Susceptibility to this condition was shown to be linked to HLA DR allelic third hypervariable region sequences.

Once RA has declared itself, it may run a progressive relapsing and remitting course and a careful management plan is required to prevent deterioration and complications. The use of anti-rheumatic drugs remains the main stay of treatment for these patients. Dietary modulation of essential fatty acid intake has been studied and the use of eicosapentaenoic acid was shown to have anti-inflammatory effects. Newer anti-rheumatic drugs such as bucillamine and analogues for RA are also being studied in collaboration with the Department of Chemistry. Thunder God Vine (triptolide), a Chinese herbal medicine, is widely used for RA and SLE in Mainland China and Hong Kong. The immunological effects of this agent have not been fully evaluated and a collaborative project with the Department of Chemistry has recently been set up to have these delineated. Preliminary results suggest this drug may have cytotoxicity effects.

Ankylosing spondylitis

There have been few studies in ankylosing spondylitis (AS). Current on-going studies include (1) HLA B27 tissue antigen sub-typing and (2) the clinical usefulness of facet joint depo-steroid injection in patients with acute back symptoms.

Others

The Division is involved (Dr. CS Lau is Committee Member) in a recently set up World Health Organisation Study on Low Back Pain. This study aims to evaluate and compare different forms of clinical psychological and socio-economic assessments of patients with chronic low back pain.

FUTURE DIRECTIONS

There is an urgent need to expand Rheumatology both within the Department and in Hong Kong. Most rheumatic disorders are chronic and disabling. Some, such as SLE and the vasculitides, may be life-threatening. Rheumatic complaints account for a large proportion of the general practitioner's consultation. Well-structured undergraduate and postgraduate teaching programmes are therefore needed to prepare our students and colleagues to deal with patients with rheumatic disorders. Improvement in the management of our patients will only come about with better understanding of these conditions, and this could only be accomplished by basic and clinical research. Our Division, with support from the Department, will continue to work hard to fulfil the above objectives and to lead in the development of Rheumatology in Hong Kong and the Region. Some ground work has been laid but much more needs to be done. This is especially so in research which requires much dedication. Work on SLE will continue to expand. However, the other major rheumatic disorders such as RA and AS have, in general, been relatively neglected. The current academic staffing level needs to be revised to cater for further expansion. Obviously, patients' eventual outcome is our ultimate concern and improvement in the provision of patient care has to continue. A Centre for Rheumatic Disorders with full facilities for patient counselling and education, treatment of in- and out-patient acute and chronic rheumatic complaints as well as basic and clinical research should not be something that we dream of but something that we will continue to strive for.

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† *Publications produced by staff whilst attached to or visiting other centres*

‡ *Publications produced by staff while employed at other centres before joining the Department*

* *Publications in non-indexed journals*

C.S. Lau and
Raymond W.S. Wong

STAFF LIST

Professors

Chan, T.K., *MD, FRCP, FRCP(E), FRCP(G), FACP, FRCP, FRCPath, FAMS, FHKCP, FHKAM(Medicine), JP* 陳棣光
Chan, V.N.Y., *BSc(Hons), MSc, DIC, PhD, FACB, FRCPath* 陳立怡
Kumana, C.R., *BSc, MBBS, FRCPC, FRCP, FHKCP, FHKAM(Medicine)*
Lam, S.K., *MD, FRCP, FRCP(E), FRCP(G), FACP, FACG, FRACP, FHKCP, FHKAM(Medicine)* 林兆鑫
Todd, D., *KB, MD, DSc(Hon) HKU, DSc(Hon) CUHK, FRCP, FRCP(E), FRCP(G), FRCP(Ire), FRACP, FRCPath, FAMS(Hon), FHKCP, FHKAM(Medicine), JP* 達安輝
Young, R.T.T., *OBE, MD, DSc(Hon) HKU, FRCP, FRCP(E), FRCP(G), FRACP, FHKCP, FHKAM(Medicine), JP* 楊紫芝

Readers

Cheng, I.K.P., *MBBS, PhD, FRACP, FRCP, FHKCP, FHKAM(Medicine)* 鄭鑑波
Lai, C.L., *MD, FRCP, FRCP(E), FRACP, FHKCP, FHKAM(Medicine)* 黎青龍
Lam, K.S.L., *MD, FRCP, FRCP(E), FHKCP, FHKAM(Medicine)* 林小玲
Lam, W.K., *MD, FRCP, FRCP(E), FRACP, FHKCP, FHKAM(Medicine)* 林華杰
Lau, C.P., *MD, FRCP, FRCP(E), FHKCP, FHKAM(Medicine)* 劉柱柏
Liang, R.H.S., *MD, FRCP, FRCP(E), FRCP(G), FHKCP, FHKAM(Medicine)* 梁憲孫
Yu, Y.L., *MD, FRCP, FRCP(E), FHKCP, FHKAM(Medicine)* 余毓靈

Senior Lecturers

Ip, M.S.M., *MD, FRCP(E), FHKCP, FHKAM(Medicine)* 葉秀文
Kung, A.W.C., *MD, FRCP(E), FHKCP, FHKAM(Medicine)* 龔慧慈

Lecturers

Chan, D.T.M., *MBBS, MRCP(UK), FHKCP, FHKAM(Medicine)* 陳德茂
Chan, J.C.K., *MD, Dip Am Board, FHKCP, FHKAM(Medicine)* 陳真光
Cheung, B.M.Y., *MA, MB, BChir, MRCP(UK)* 張文勇
Ching, C.K., *MBChB, MD, MRCP(UK), FHKCP, FHKAM(Medicine)* 程自剛
Ho, D.S.W., *MBBS(Hons)(Syd), PhD(Syd), FRACP, FHKCP, FHKAM(Medicine)* 何世華
Ho, S.L., *MD, MRCP(UK)* 何樹良
Kwong, Y.L., *MBBS, MRCP(UK), MRCPath, FHKCP, FHKAM(Medicine)* 鄺沃林
Lau, W.C.S., *MD(Hons), MRCP(UK), FHKCP, FHKAM(Medicine)* 劉澤星
Tan, K.C.B., *MD(Wales), MRCP(UK)* 陳俊明

Honorary Clinical Lecturers

Chan, A.S.C., *MBBS(HK), Dip Ven, DipDerm(Lond), FRCP(G), FHKCP, FHKAM(Medicine)* 陳修治
Chan, C.H., *MBBS(HK), FRCP(E), FRCP(G), FHKCP, FHKAM(Medicine)* 陳焯雄
Chan, C.K., *MBBS(HK), Dip Am Board, FRCP(E), FHKCP, FHKAM(Medicine)* 陳志權
Chan, K.H., *MBBS(HK), FRCP(E), FRCP(G)* 陳嘉何
Chan, L.C., *MBB(Chir), MA(Camb), MRCP(UK), PhD(Lond), FHKCP, FHKAM(Path)* 陳立昌
Chang, C.M., *MBBS(HK), FRCP(G), FRCP(E), FHKAM(Medicine)* 張茲勤
Chen, W.W.C., *MBBS, MD(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 陳維智
Cheng, C.H., *FRCP(E), FRCP(G), FHKCP, FHKAM(Medicine)* 鄭俊豪
Cheung, K.L., *MBChB(Leeds), FRCP(E), FHKCC, FHKCP, FHKAM(Medicine)* 張敬龍
Chim, J.C.S., *MBChB(HK), MRCP(UK), FHKCP, FHKAM (Medicine)* 詹楚生

Chiu, E.K.W., *MBBS(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 趙健華
Choa, B.H.G., *MA(Cantab), MBBChir, MRCP(UK), FHKCP, FHKAM(Medicine)* 蔡偉達
Chong, L.Y., *MBBS(HK), DipDerm(Lond), MRCP(UK), DipGum(Lond), FHKCP, FHKAM(Medicine)* 莊禮賢
Chow, J.S.F., *MBBS(HK), FRCP(E), FHKCP, FHKAM(Medicine)* 周斯富
Chow, S.L., *MBBS(HK), MRCP(UK), FRACP, FHKCC, FHKCP, FHKAM(Medicine)* 周　亮
Chow, W.H., *MBBS(HK), FRCP, FHKCC, FHKCP, FHKAM(Medicine)* 周榮興
Chu, L.W., *MBBS(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 朱亮榮
Fong, J.K.Y., *MBBS(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 方嘉揚
Huang, C.Y. *MBE, BSc(Syd), MBBS(HK), MMed(Sing), FRACP, FHKCP, FHKAM(Medicine)* 黃震遐
Hui, W.M., *MD(HK), FRCP(E), FHKCP, FHKAM (Medicine)* 許偉武
Kwan, W.K., *MBBS(HK), FRCP(E), FHKCP, FHKAM(Medicine)* 關偉強
Lai, C.F., *MBBS(HK), DipVen, DipDerm(Lond), MRCP(UK), FHKCP, FHKAM(Medicine)* 黎湛暉
Lai, K.C., *MBBS(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 黎錦泉
Lai, M.S., *MBBS(HK), MRCP(Ire), FHKCP, FHKAM(Medicine)* 黎滿勝
Lam, C.W., *MBBS(HK), FRCP(G), FHKCP, FHKAM(Medicine)* 林澤華
Lau, Y.K., *MBBS(HK), Dip Am Board Internal Medicine, FHKCP, FHKAM(Medicine)* 劉育港
Lee, S.W.L., *MBBS(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 李偉聯
Leung, W.H., *MBBS(Hons)(HK), MD(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 梁永雄
Li, C.S., *MBBS(HK), FRCP(E), FRCP(G), FHKAM(Medicine)* 李俊生
Li, L.S.W., *MBBS(NSW), MRCP(UK), FACRM, FAFRM(RACP), FHKCP* 李常威
Lo, C.Y., *MBBS(HK), MRCP(UK), FHKCP* 盧志遠
Lo, K.K., *MBBS(HK), DipDerm(Lond), MRCP(UK), FHKCP, FHKAM(Medicine)* 盧乾剛
Lo, W.K., *MBBS(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 盧維基
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Ng, N.S., *MBBS(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 吳爵成
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So, S.Y., *MBBS(HK), FRCP(E), FHKAM(Medicine)* 蘇淳養
Teng, C.S., *MD(HK), FRCP(E), FHKCP, FHKAM(Medicine)* 鄧宗勝
Tsang, C.W., *MBBS(HK), FRCP(E), FRCP(G), FHKCP, FHKAM(Medicine)* 曾慶華
Tsang, M.T.S., *MBBS(HK), FRCP(E), FRCP(G), FHKCP, FHKAM(Medicine)* 曾子恕
Tse, B.S.S., *MBBS(HK), MRCP(UK), FHKCP, FHKAM(Medicine)* 謝勝生
Tse, T.F., *MBBS(HK), FRCP(E), FRCP(G), FACC, FHKCP, FHKAM(Medicine)* 謝德富
Tso, S.C., *MBBS(HK), FRCP(E), FRACP, FHKCP, FHKAM(Medicine)* 曹紹釗
Wong, C.K., *MBBS(HK), MRCP(UK), FHKCP* 黃卓傑
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Wong, S.P., *MBBS(HK), FRCP(E), FHKCP, FHKAM(Medicine)* 王壽鵬
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Yu, D.Y.C., *MD(HK), FRCP(E), FHKCP, FHKAM(Medicine)* 余宇超
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Honorary Senior Lecturer

Chung, S.S.M., *BSc(Oregon), PhD(Calif)* 鍾森文

Research Associates

Fang, G.X., *MBBS(Guiyang Med Coll)* 方國祥

Janus, E.D., *MBChB, MD(Otago), PhD(Lond), FRACP, FRCPA, FACB, FCCP*
Wang, C.C.L., *MD(HK), FRACP, MRCP(G)* 汪重輪

Administrative Assistant

Lam, I.S.T., *BComm(Alberta), PCEd(HK), PGDLL(HK)* 林淑棠

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Dr. Sun Yat-Sen Chair in General Practice

Dixon, A.S., *MBChB(Leeds), FCCFP* (Head of Unit)

Senior Lecturer

Lam, C.L.K., *MBBS(HK), FRCGP, FHKAM(Family Medicine)* 林露娟

Lecturer

Lam, T.P., *MBBS(W Aust), FRACGP* 林大邦

Honorary Clinical Lecturers

Au Yeong, T.C.K., *MBBS(HK), MRCP(UK)* 歐陽志強
Badway, M., *MBBS(Monash), FRACGP, FHKAM(Family Medicine)*
Bien, B.T.T., *MBBS(NSW), FHKAM(Family Medicine)*
Bunting, V.M.G., *B Med*
Campbell, D.S., *MBChB(E), MRCGP*
Chan, H.C., *MBBS(HK), FRACGP, FHKAM(Family Medicine)* 陳洪昭
Chan, K.W., *MBBS(HK), MRCGP, FHKAM(Family Medicine)* 陳國維
Chan, P.H.W., *BS(Quincy Coll), MBBS(HK), DCH(Ire)* 陳鴻偉
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Chan, P.Y.N., *MBBS(HK), DCH(Lond), DCH(G), MRCP(UK)* 陳育寤
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Choi, C.W., *MB(Taipei), LMC(HK), DCH(Lond)* 蔡鎮華
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Hui, L.Y.F., *MBBS(HK), FHKCGP, FRACGP* 許燕芬
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Lau, F.Y.T., *MBBS(HK), FHKAM(Family Medicine)*	劉鈺棠
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Siu, P.C., *MB(Taipei)*	蕭炳昌
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Syed, A., *MBBS(HK)*	陳偉倫
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T'ang, J.S.F., *MBBS(NSW), FRACGP*	唐少芬
Ting, M.N., *MBBS(NSW)*	丁萬年
Tong, P.Y.W., *MBBS(HK)*	湯儒偉
Tong, S.M., *MBBS(HK), DCH(Lond), DCH(Ire), FRACGP*	湯兆敏
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Tsang, T.K.L., *MBBS(HK)*	曾廣力
Tse, E.Y.Y., *MBChB(E), MRCGP, FHKAM(Family Medicine)*	謝婉儀
Wong, H.C.W., *MBBS(Q'ld), FRACGP, FHKAM(Family Medicine)*	黃鎮華
Wong, H.W., *MBBS(HK), FHKAM(Family Medicine)*	黃鴻偉
Wong, J.K.H., *MBChB(E), MRCGP*	黃國豪
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Yeung, C.W.K., *MBBS(HK), DCH(Ire)*	楊永健
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Yung, C.Y., *MBBS(HK), MRCP(UK), FACCP*	翁祖耀
Yung, G.S.W., *MBBS(HK)*	容世華

Other Staff

Ho Li, M. M. C.	韓李美珍
Nam, T.	藍　達
Tsui, R. S. F.	徐淑芳

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