

EDUCATION IN CLINICAL NUTRITION IN MEDICAL SCHOOLS

Mark L WAHLQVIST

● Clinical nutrition practice by medical graduates, has an important role in societies which seek their health care to be scientifically and holistically based. This is even more the case where such societies are searching for ways of improving health, as well as preventing and managing disease and where, when biomedical science has failed, alternatives to it become ascendant.

Clinical nutrition is based on the biomedical and psychosocial sciences whose teaching begins early in the medical curriculum and where their implications for clinical nutrition can be foreshadowed. But, ultimately the motivating methods of instruction in clinical nutrition are those at the bedside or in public health settings. It is important to acknowledge that the role of clinical nutrition extends beyond medical consultation or practice. Indeed, one of the most pressing obligations, which again needs to be reflected in the medical curriculum, is the nexus between the medical practice of nutrition, the education sector, the agricultural and food sectors and government.

■ THE CONTEXT OF CLINICAL NUTRITION

Clinical nutrition has its own rationale¹⁻³⁾

- ① a resource for primary health care
- ② research and development
- ③ multi-disciplinary interaction
- ④ provision of methodological resources (food intake, food, compositional and various laboratory investigations) and

- ⑤ diagnosis and management of difficult, complex nutritionally-related health problems

- ⑥ linkage of medicine to the agricultural and food sectors

■ A RESOURCE FOR PRIMARY HEALTH CARE

First, primary health care doctors need an undergraduate education in food and nutrition because of the extent to which practice requires it in the fields of communicable (with under-nutrition) and non-communicable disease, and the quest by patients for healthier lives through nutrition. Then, developments in primary health care, amongst general and family medical practitioners, are contingent on an educational and advisory process being available from specialist colleagues in clinical nutrition. This may be conducted through ongoing education in a formal sense, by the use of consultants with clinical nutrition expertise, especially those who contribute to postgraduate literature, and, especially, through the correspondence from consultants. It is very difficult for new developments to be reflected in primary care medicine unless there is specialist back-up. The corollary, however, is that most clinical nutrition activities ought to remain firmly within the primary sector rather than be culled out for specialist attention. One of the great strengths of primary health care for clinical nutrition is that the integration and prioritising of nutritional advice can take place when the context may be quite broad. Not only, of course, is the specialist clinical nutritionist a resource for general practitioners, but the lin-

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kage is a stimulus for development in the tertiary health care arena.

■RESEARCH and DEVELOPMENT

There are few fields of medicine undergoing a more rapid resurgence than clinical nutrition at present. This has happened just in time, since there were also rapid and parallel developments in what could be termed the "fringe medical practice of nutrition" which was beginning to go by the same nomenclature of "clinical nutrition" or "medical nutrition". Securing the growing interest in nutrition in medical practice for those who would practice it in a scientifically sound fashion, has been most important. To keep this process alive, it will be important for clinical nutrition research and development programs to be part of most, if not all, tertiary or university teaching hospitals. These need not always be stand-alone, and they can be productively part of larger and more traditional clinical

departments. Such is the case in my own Department of Medicine, where there is a thriving Nutrition Research Group. There are similar developments in other Departments of Medicine in Australian Medical Schools, and throughout the Asia-Pacific region, like Japan.

■MULTI-DISCIPLINARY INTERACTION

Clinical Nutrition itself is a multi-disciplinary pursuit. It is not organ or system based like the various sub-specialties of gastroenterology, endocrinology, cardiovascular medicine, neurology and respiratory medicine in their own rights.

It is more like oncology, which deals with a particular way in which disease can develop and the implications for management ; clinical immunology, which also deals with particular kinds of disease processes ; and even diabetes which is a prototype for multidisciplinary care. Clinical Nutrition does, however, have a responsibility to be interactive with each of the organ-based specialties, including that dealing with heart and blood vessels.

There are now good examples of how a fresh look at food-health relationships is changing the face of these disciplines. Examples would be peptic ulcer disease and nutritional factors which might influence *Helicobacter pylori* infestation in the upper gut, the nutritional factors which alter the colonic micro environment and propensity to large bowel cancer ; the broader sweep of nutritional factors which operate to alter risk of atherosclerotic vascular disease, not only through lipoproteins but also through blood pressure, platelet function, proneness to arrhythmia and abdominal fatness ; the many nutritional factors which interact with other lifestyle factors in the pathogenesis of osteoporosis ; and nutritional factors which may modulate motor function in Parkinsonism and the dampening or avoidance of motion sickness by particular foods like ginger ; the

解説

今日、臨床栄養の進歩は著しく、種々の臨床領域であらたな展開がみられつつあり、また一方ではバラエティーに富んだ研究がなされている。とはいえ、臨床栄養に関する教育の現状はといえば、わが国においては残念ながら胸を張って答えられない現状にある。臨床栄養の講義・実習を系統的に行っている医育機関はまだないといってよいであろう。

Mark L. Wahlqvist 教授はオーストラリア Melbourne Monash 大学内科の主任教授で、専門領域は臨床栄養学である。内科臨床をこなす一方、臨床栄養の真の定着をめざして、まさに全力投球を行っている。自国のこの領域のリーダーであるのみならず、国際栄養学会 (IUNS) の理事、Asia Pacific Journal of Clinical Nutrition の Editor in chief、その他、数多くの栄養関係の雑誌の Editorial Board を勤めてもいる。本稿ではとくにお願いで、医学生に対する臨床栄養の教育について氏の基本的な考え方を披露していただいた。今後、わが国においてこの領域の重要性が認識され、臨床栄養の教育がなされる体制が作りあげられることを期待する次第である。(岡田 正)

radical change in nutritional management of diabetes and the uncertainty about which environmental factors are allowing the increased incidence of insulin-dependent diabetes.

As a matter of fact, we are finding that new clinical programs with a nutritional emphasis are now emerging under the auspices of clinical nutrition. Examples are "osteoporosis assessment", "eating and body compositional disorders", "inherited and metabolic disorders in adulthood", and "the use of medical foods in nutritional support for wasting and other disorders".

With a multi-disciplinary approach, clinical nutrition has the prospects of contributing to improvements in all-cause morbidity and mortality.

■PROVISION OF METHODOLOGICAL RESOURCES

No clinical specialty can be without its stable of methodology. Most crucial in the nutritional field is an ability to reliably assess food intake and to express it as food indices as well as nutrient intakes. For example, food variety scores are readily accessible in clinical practice and have predictive power for non-communicable disease or their risk. The wider the variety of food, assessed on the basis of biological difference, or of difference in food technology and food preparation as well, the less the coronary risk, in this case in Chinese women, and presumably other groups.

Clinical Nutrition Units are now also seeing a particular role for development, standardisation and application of body compositional techniques. The range of these of clinical relevance is from anthropometry, to electrical conductivity methods (impedance), to dual energy X-ray absorptiometry (DEXA), whole body counting (K 40), and *in vivo* neutron activation analysis.

Nutritional biochemistry, haematology and,

increasingly, immunology are mainstay laboratory methodologies. Increasing evidence for the partial reversal of immuno-deficiency in, for example, the aged provide an even greater impetus for the development of clinical nutrition methodology.

Ultimately, the methodologies must result in improved ways of nutrition support, be they oral, enteral or parenteral.

■DIAGNOSIS AND MANAGEMENT OF DIFFICULT, COMPLEX, NUTRITIONALLY-RELATED HEALTH PROBLEMS

A good deal of complexity insofar as nutritional contributing factors are concerned, is seen in inherited disorders of metabolism, eating disorders, wasting disorders, food sensitivities, and cardiovascular disease.

One of the issues that rekindled interest in clinical nutrition was the under-appreciation of protein-energy, malnutrition (PEM) in hospital settings. One of the reasons for the development of patient-based instruction in clinical nutrition is to raise the consciousness of medical graduates to nutrition as an explanatory model for clinical problems. Once nutritional diagnoses are made, more opportunity for nutrition management is seen.

■LINKAGE WITH AGRICULTURAL AND FOOD SECTORS

There are insufficient medical doctors trained to collaborate with agriculture and food industry to develop the future food supply in a healthy and environmentally sustainable way. Clinical nutrition training can achieve this.

■TRAINING IN CLINICAL NUTRITION

It cannot be stated strongly enough how important role models are for the practice of clinical nutrition if undergraduates and post-graduates are to be inspired in this direction, whether as an integral part of a number of areas of medical practice or as a specialty development. Experience would dictate that

one of best role models is provided by clinicians who apply appropriately selective nutritional assessment and nutritional management as part of an overall repertoire for patient care, especially in broadly-based clinical settings.

Encouragement of clinical nutrition practice is also provided when it regularly appears in ongoing education programs for medical practitioners.

Training in clinical nutrition can, of course, be distinctive and separate or, more commonly, be a part of programs in the other major disciplines of medicine, including internal medicine (adult and paediatric), surgery, psychological medicine, women's health (obstetrics and gynaecology) and laboratory medicine.

■ PROFESSIONALIZATION IN CLINICAL NUTRITION

Medical graduates need to understand that there are career paths in clinical nutrition which extend beyond those of hospital medical staff to the community, various specialty and public health domains.

■ FUTURE PROSPECTS

Clinical Nutrition is a growth discipline and its future will embrace :

- ① a consideration of nutritional problems

as part of usual clinical decision making

- ② a better understanding and application of nutritional factors which affect genetic expression

- ③ the definition of dietary tolerance as part of biological reserve and better understanding of the value or otherwise of nutritional change in individuals and communities

- ④ reduction in nutritionally related non communicable and communicable diseases

- ⑤ a contribution to ecological betterment through the discovery and promotion of methods of food production which are conducive not only directly to health but also indirectly through the environment.

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