Pergamon

European Journal of Cancer Vol. 30A, No. 8, pp. 1145–1148, 1994
Elsevier Science Ltd
Printed in Great Britain
0959–8049/94 $7.00+0.00

0959-8049(94)00208-8

European School of Oncology Advisory Report to the Commission of the European Communities for the "Europe Against Cancer Programme"

Continuing Medical Education in Oncology Within the European Union

J.P. Armand, P. Alberto, A.Costa, J. Estape, R.V.H. Jones, J. Overgaard and C.D. Sherman Jr

1. INTRODUCTION AND ABSTRACT

1.1 Cancer is the main cause of morbidity and mortality in the European Union after cardiovascular diseases. For a population of 322 million inhabitants, 750 000 die annually of the disease. By the year 2000, 2 million people will develop cancer and half of them will die if no major therapeutic solution is proposed. Even if these figures seem high, they seriously fall short of the human, social and financial cost of cancer for the European Union.

1.2 Public expectations regarding oncology are changing. The higher they are, the more they create a demand for extra services and up-to-date knowledge for cancer treatment in the different countries. The setting in which physicians function is also undergoing change, and they are having to face new challenges, with recent dramatic advances in biomedical research on cancer. Health care costs are rising, market forces are diverting medicine towards commercial interests, patients are challenging the renowned paragons of medical know-how and demanding all forms of advice before accepting treatment.

1.3 Cultural, environmental, bureaucratic and political factors are interacting at different levels in the various countries, and account for the wide heterogeneity in the time to diagnosis and the quality of cancer care for European cancer patients. Wide differences have been reported in survival rates, between hospitals within a country and from one country to another. A case in point is that of testicular cancer treated with chemotherapy for which the 5-year survival rate varies from 30 to 80% according to where it is treated. Thus the likelihood and duration of survival are contingent on the rapidity with which fully trained physicians make key decisions, and on the constant renewal of their knowledge and expertise. It has been estimated that 20% of patients in Europe fail to be cured because of a delay in early diagnosis and/or erroneous treatment.

1.4 Education was recognised by the Treaty of Rome as a major responsibility of the European Union. A curriculum for undergraduate education in oncology was agreed upon at the European level (Bonn, May 1988). If undergraduate teaching has improved considerably from one country to another, postgraduate education is still confused. Self-directed by physicians according to their own interests, practice and perceived needs, postgraduate education is able to benefit from active European societies of radiotherapy, medical oncology, surgical oncology and nursing oncology, but it remains dependent on many bodies with conflicting interests.

1.6 Such criticism and the above-acknowledged changes argue in favour of continuing medical education (CME), based on new concepts and new teaching methods, which are developed in the medical community where health needs are greatest, rather than in the university hospital.

1.7 The quality of health care is, to a considerable extent, dependent on the knowledge and competence of doctors. Most medical knowledge becomes obsolete within a decade. CME will bring together the interests of patients, doctors, universities and health systems and the responsibility for providing CME should, therefore, be on government institutions and professional organisations.

1.8 Pressure from the public regarding the accountability of physicians is on the increase. The implementation of CME programmes will help to curb the explosion of malpractice issues which has had a noxious effect on the patient/doctor relationship in North America.

1.9 Once the principle of the mobility of physicians within the community has been officially approved, we will need to aim towards common treatment quality assurance standards and

Correspondence to A. Costa at the Division of Senology, Istituto Europeo de Oncologia, Via Ripamonti 435, 20141 Milano, Italy.
Members of the Continuing Medical Education in Oncology Advisory Group are J.P. Armand, Chairman (Departement de Medecine, Institut Gustave-Roussy, Savigny-le-Temple, France), P. Alberto (Division of Oncology, University Hospital, Geneva, Switzerland), A. Costa (Division of Senology, Istituto Europeo di Oncologia, Milan, Italy), J. Estape (Catedra de Oncologia, Hospital Clinic, Barcelona, Spain), R.V.H. Jones (Postgraduate Medical School, University of Exeter, U.K.), J. Overgaard (Department of Experimental Clinical Oncology, Danish Cancer Society, Aarhus, Denmark) and C.D. Sherman Jr (Department of Surgical Oncology, Highland Hospital, New York, U.S.A.).
The Advisory Group met in Paris on 20th and 21st September 1993 and its activity has been supported by the "Europe Against Cancer" Programme of the Commission of the European Communities.
Received 31 Mar. 1994; accepted 4 May 1994.

medical competence throughout the European Union. At present, knowledge on how to assess the educational needs of physicians, on efficient CME teaching methods and on how to evaluate CME is rudimentary in many Member States.

1.10 The controversial issue is whether CME should be voluntary or mandatory. Even if it is decided that it should be voluntary, there is concern for a need for incentives and controls (linked or not to relicencing) which should be standardised throughout the European Union.

Oncology is considered an ideal area in which to test CME, since it is a complex, all-embracing discipline, and controversial by virtue of the fact that it crosses the boundaries of organ specialities and at the same time encompasses aspects of disease management, such as prevention, early diagnosis and palliative care, hitherto considered in a limited manner by the other specialities. In addition, in many Member States, the current position of postgraduate training for oncologists (radiotherapists, paediatricians, medical oncologists, surgical oncologists, etc.), nurses and other health care providers and non-oncology specialists (general practitioners) involved in the treatment of cancer patients is confused and lacks coordination.

Continuing Medical Education in Oncology Within the European Union

"If you think education is costly, try paying for ignorance."
Groucho Marx

2. DEFINITION OF THE PROBLEM

2.1 Medical knowledge and practice are subject to a continuous process of innovation, change, occasionally catalytic but more often than not transitional. It has been estimated that several turnovers of knowledge occur within one professional lifetime. CME is, therefore, essential to maintain the competence of all practising clinicians.

The major problem relating to the provision of effective CME in oncology is that the question, "What is happening now regarding CME in oncology in this country?" and, "What should be happening?" have not been seriously considered in any Member State at a national level. This contrasts with the situation in undergraduate education where a curriculum in oncology has already been agreed at European level.

The advisory group received evidence that postgraduate training in oncology for oncology specialists and non-oncology specialists involved in treating cancer patients is obscure and incoherent. In none have the present state or the future needs of CME in oncology been discussed publicly, basic information is deficient and aims and objectives of oncological CME have not been defined within Europe. Until this deficiency is overcome, establishing an effective coordinated CME programme in oncology will inevitably meet with difficulties.

2.2 *Professional responsibility*

The accountability and responsibility of doctors is a matter of increasing concern to the public, governments and to the medical profession itself. Recertification of doctors is a real issue being seriously considered. Within this wider debate, control over continuing medical education can become a contentious issue. Developments in the United States show that disagreement as to whether the "government" or the profession is principally responsible for CME can be an obstacle to the establishment of effective CME.

2.3 *Educational aspects*

To motivate clinicians to attend and benefit from CME:

- they need to be actively involved in identifying their personal educational needs;
- the content of the educational programme should be relevant to their needs;
- the educational methods used should be appropriate to their status as established clinicians;
- feedback and postcourse assessment should be provided.

These factors are equally applicable in the important field of self-directed learning. Here computerised expert programmes allowing self-assessment will probably be a key tool in the development of CME in Europe. The European Union budget for computerised programmes has recently been approved and could be rapidly implemented in the field of oncology.

The problem lies in the fact that few medical teachers in Member States are skilled in needs assessment, in matching programme content to needs, or using adult learning methods. This constitutes a serious drawback to implementing effective CME in oncology.

An additional educational problem is that although much of oncological treatment, care and aftercare involves nurses, therapists and other professionals as well as doctors, and although it has been shown that multiprofessional CME is an effective way of improving cooperation and outcome for patients, there are very few medical or other health professional teachers in Europe who possess multiprofessional teaching skills. Any system adopted should however be rapidly adaptable to the current changes in the National Health Systems.

2.4 *Attitudes to CME*

Positive attitudes towards the need for life-long learning are not held by all doctors involved with cancer patients. The attitudes formed during the undergraduate stage of education persist. Only half of the oncologists actually benefit from CME. This is essentially because they do not realise their shortcomings nor the real extent of their knowledge. This was demonstrated in regard to breast cancer screening for both radiologists and pathologists who were astounded by the number of errors thay made when tested (or when they tested themselves). They did not need to be convinced that continuing education must be developed. Unless the importance of life-long learning is appreciated at an early stage, a negative attitude toward CME may be engendered. Education itself must be reformed so that students adopt a "learning to learn" approach rather than simply memorising data subject to rapid and radical changes in the field of oncology.

2.5 *Cooperation and resources*

For those Member States which lack a structure for or experience in CME in general (and CME in oncology in particular), the absence of national and international resource centres or coordinating councils is yet another drawback. Unless the experience of those who have been longer in the field can be shared, mistakes will be repeated and progress will be slow.

2.6 *Standard setting and accreditation of CME*

A set of agreed standards is necessary to discourage providers of CME in oncology from producing programmes which fail to reach a satisfactory level of educational competence. Within the EU, there is very little awareness of the need to formulate accreditation standards for providers.

2.7 *Provision and funding*

In other countries where CME and CME in oncology exist, provision and funding may involve many different authorities, bodies and organisations (governments, ministries of health, universities, university and general hospitals, professional colleges and associations, scientific societies, charities) and other non-profit-making organisations as well as commercial firms and enterprises.

Contributions from all these sources should be channelled through independent professional bodies unlikely to generate a conflict of interest with the objectives of continuing education.

Although this diversity in the sources of provision can be a strength (providing a whole range of options and initiatives), it can also generate problems unless mechanisms for cooperation in the production of coherent programmes and in maintaining "provider standards" exist.

Compliance to educational commitments would be difficult and unsatisfactory if considerable financial restrictions are imposed on the medical services provided to patients. Adequate resources (staff and equipment) would reinforce units at consultant level.

3. CURRENT SITUATION

In a recent letter to *The Lancet* [1], the Royal College of Physicians of Edinburgh remarked that "Today's needs and expectations are not being [...] satisfied by voluntary participation in continuing medical education (CME) and is recommending that such education be made obligatory for consultants". In the final report of the World Conference on Medical Education held in Edinburgh in August 1993, item 2 states that "CME should not be mandatory; however the periodic assessment of the professional competence of doctors, usually expressed in the licensing and certification requirements, may be appropriate for some countries" [2].

Unlike in the United States where a federal system based on fiscal incentives and periodical controls has been introduced [3], in the European Union only the U.K. Royal College of Physicians has elaborated a CME scheme which will be implemented as of January 1994 and could be a useful model for future reference.

3.1 In the U.K., the responsibility of CME is borne by the Royal Colleges. Two colleges (Gynaecology and Radiology) related to oncology have published their own schemes. The others are still in the process of formulating their own.

A project aimed at encouraging CME among general practitioners has been in full swing for several years. In order to qualify for a financial allowance from the state, general practitioners must complete 10 CME approved course sessions each year. Approval for courses is granted by Regional Advisors in general practice on the basis of professionally agreed criteria.

3.2 In France, there is no medical structure catering for medical competence in oncology once specialisation in medical oncology and radiation oncology has been recognised. CME is a totally self-directed endeavour. Provision for CME is either local and confined to the regional comprehensive cancer centres, which form a network covering the whole country, or national and limited to a 15-day updated course in chemotherapy and an annual course (one day weekly) in clinical oncology at the Institut Gustave-Roussy.

Pharmaceutical companies sponsor educational programmes focusing essentially on topics directly related to the drugs they commercialise. The international educational programmes conducted by ASCO, ESMO, etc. are frequently taken by French oncologists. Most of the medical oncologists in ESMO have taken the ESMO examination once since 1989.

In contrast, general practitioners are more organised than specialists. Oncology does, however, benefit to a minor extent from areas of their continuing medical education which are highly adapted to their needs, namely early detection, pain control and terminal care.

3.3 In Italy, no periodical assessment or control is envisaged by the Government for medical competence. In the public sector, competitive examinations serve as a key for access to higher positions in the National Health System. CME is entrusted to local medical associations of physicians who organise courses on a regular basis, mainly for general practitioners who enjoy limited fiscal incentives for updated training and medical knowledge.

3.4 In Spain, the General Direction for the Ordination of Professionals is working on establishing regulations for health workers practice, including Continuous Medical Education (document entitled "Bases para la Ordenacion de las Profesiones Sanitarias, 27-04, 1993").

Education and Health Ministries and their Autonomous Community counterparts are prompting the Public Health System, hospitals, professional associations, colleges of physicians and charities to permanently update the knowledge, skills and attitudes of health workers, and to establish requirements and procedures for accreditation in centres, organisations and institutions.

The precise CME model to be adopted has not yet been defined. Meanwhile there are many CME activities, the majority of them with limited assessment or accreditation.

3.5 ESMO. The only structured attempt to organise CME for specialists at the European level is the certification system of the European Society of Medical Oncology (ESMO). The ESMO certification in medical oncology is delivered on the basis of a multiple-choice examination which covers a wide selection of practical and theoretical knowledge deemed essential for the medical treatment of cancer patients. Initiated in 1989, this examination has had regular yearly sessions until now. Approximately 350 European medical oncologists are ESMO certified. The form of the examination, namely the distribution of questions among the various aspects of medical oncology, the relative proportion of malignant diseases and the mean level of difficulty has remained more or less unmodified since its inception. It permits a medium-term evaluation of the level of the skills European oncologists possess, and an appraisal of the need for any improvements. The cumulative results of the ESMO examination after 5 years indicate that only minor changes have been observed in the mean level of knowledge of medical oncologists in European countries with scores ranging from 0.63 to 0.79. Overall, and with a cut-off point at 0.6, approximately 10% of participants had insufficient results and could not be certified.

ESMO considers that the examination/certification in medical oncology has had three main positive aspects:

(1) It offers quality assurance to European medical oncologists.
(2) It helps to define the needs for CME.
(3) It maintains stimulatory pressure on European medical oncologists to improve their personal professional education.

4. RECOMMENDATIONS FOR ONCOLOGY FROM THE ADVISORY GROUP

(1) The advisory group proposes changes in ideas regarding

principles and methods for education, with a personal and self-directed system which avoids a CME bureaucracy, provides assistance and is, above all, oriented around patient needs.

(2) Funding should be accepted from different bodies, including private sources, provided that it is channelled through independent bodies.

(3) CME should be voluntary with incentives and controls in accordance with the regulations and the cultural mores in the different European countries.

(4) Given the uniqueness of oncology, which includes specialists and non-specialists and is not organ-specific but has a singular philosophy and approach to the management of disease (prevention, treatment, palliative care), a consensus conference on CME is recommended.

1. Royal College of Physicians of Edinburgh. *Continuing Medical Education for Trained Physicians*. Edinburgh, RCPE, 1992.
2. Baron M, Hana T, Martini C. *Continuing Medical Education*. Final Report from Group 9. World Conference on Medical Education, Edinburgh, 8–12 August 1993.
3. Sherman CD, Lambiase P. Continuing medical education in the United States: a critique. *Eur J Cancer* 1993, **29A**, 784–787.

Acknowledgement—We thank Lorna Saint Ange for editing the manuscript.

Pergamon

European Journal of Cancer Vol. 30A, No. 8, pp. 1148–1160, 1994

0959–8049/94 $7.00+0.00

0959-8049(94)00233-9

European School of Oncology Task Force Report

New Approaches in Cancer Pharmacology: Drug Design and Development (Part 2)

P. Workman, M. D'Incalci, W. Bursch, K.R. Harrap, R.E. Hawkins, S. Neidle and G. Powis

INTRODUCTION

IN A PREVIOUS REPORT [1], the ESO Task Force reviewed recent progress in the following areas: (1) DNA sequences and gene-specific drugs; (2) anti-sense and anti-gene oligonucleotides targeted to oncogenes; (3) prospects for biological therapies; (4) membrane and signal transduction targets; (5) development of anti-tumour ether lipids; (6) design of novel anti-endocrine agents; (7) design of novel bioreductive drugs; (8) pharmacokinetics, pharmacodynamics and dose optimisation; and (9) screening for new anti-tumour drugs. We now turn our attention to the latest advances in (1) pharmacological evaluation of new agents; (2) principles in the design of DNA-interactive molecules: (3) discovery of improved platinum analogues; (4) inhibitors of intracellular signalling; (5) discovery of inhibitors of oncogenic tyrosine kinase signalling and downstream targets; (6) apoptosis and cancer therapy; and (7) engineering antibodies for targeted cancer therapy.

Correspondence to P. Workman at the CRC Beatson Laboratories, CRC Department of Medical Oncology, University of Glasgow, Garscube Estate, Switchback Road, Glasgow G61 1BD, U.K.
M. D'Incalci is at the Instituto Mario Negri. via Eritrea 62, 20157 Milano, Italy; W. Bursch is at the Institut fur Tumorbiologie-Krebsforschung der Universitat Wien Borschkegasse 8a, A–1090 Wien, Austria; K.R. Harrap is at the Drug Development Section, Biochemical Pharmacology Team, Block E, 15 Cotswold Road, Belmont, Sutton, Surrey SM2 5NG, U.K.; R. E. Hawkins is at the MRC Centre for Protein Engineering, University of Cambridge, Hills Road, Cambridge CB2 2QH, U.K.; S. Neidle is at the Cancer Research Campaign Biomolecular Structure Unit, The Institute of Cancer Research, 15 Cotswold Road, Sutton, Surrey SM2 5NG, U. K.; and G. Powis is at the Arizona Cancer Center, 1515 North Campbell Avenue, Tucson, Arizona 85724, U.S.A.
Received 16 Feb. 1994; accepted 14 Apr. 1994.

PHARMACOLOGICAL EVALUATION OF NEW ANTI-CANCER AGENTS

(Discussion leader: Maurizio D'Incalci)

To discover innovative new anti-cancer agents, we must use the most appropriate primary test systems; subsequent evaluations must then be carried out in additional relevant models to provide further information on molecular specificity and therapeutic selectivity prior to clinical trials [2, 3]. The successful identification and evaluation of novel anti-cancer drugs effective against human tumours will depend on the degree of predictivity of the experimental models which are selected. We can schematically divide the experimental systems for the evaluation of a new anti-cancer agent into: (1) *in vitro* cell-free models; (2) *in vitro* cellular models and (3) *in vivo* tumours growing in animals.

In the last few years, a number of novel molecular targets for potential new anti-cancer drugs have been identified. These targets include receptors of hormones and growth factors; DNA sequences which are presumed to be involved in the malignant behaviour of cancer cells and key enzymes or other control proteins (e.g. oncogene products) which play a crucial role in the abnormal proliferation of cancer cells [2, 4]. The *in vitro* investigation of drugs which block a specific target can now take advantage of our rapidly growing knowledge of the biology and biochemistry of cell proliferation in normal and neoplastic cells, as well as benefiting from the application of new methods to