Plenary Lecture

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Monotoring cancer occurrence and outcome in Europe in the 21st century

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Monitoring cancer occurrence implies measurement of the number of new cases of cancer, as an indicator of need for services or care, or to calculate incidence rates, for comparisons of risk in different populations, or over time. These data come from population-based cancer registries. Mortality rates have traditionally been used for the same purpose, but ratios of mortality rates are only valid indicators of differences in risk if case fatality rates are constant. Available survival data suggest that, except for cancers with very poor prognosis, this is rarely the case. Mortality data are, however, available for almost all countries of Europe, although the degree of detail and quality of information is variable.

Cancer registration has developed progressively in Europe since the first registries (Hamburg and Denmark) were set up, more than 50 years ago. Some standardization of methodology was provided *via*international organizations (IARC and IACR), but new impetus was given to the process by the establishment of the European Network of Cancer Registries (ENCR) in 1989, which also provided opportunities for a wide variety of collaborative actions. These include the cancer database EUROCIM, to which all European registries are invited to contribute, receiving in return a copy for their own purposes. EUROCIM is primarily a research tool, but the data are used to prepare comprehensive sets of estimates of incidence, mortality and prevalence at national level, annually for the 15 member states of the EU itself (the EUCAN estimates), and five-yearly for all countries of Europe. In 1999, there were 1.57 million new cancer cases in the EU countries, and 930,000 deaths. The most common cancers were lung (in men), breast (in women), and cancers of the large bowel (in both sexes combined). The "Europe-95" estimate is for all 38 countries of Europe, where there were an estimated 2.6 million new cases and 1.6 million deaths. A systematic review of the time trends shows rather uniform patterns for certain cancers (breast, stomach, lymphoma), while trends for lung cancers are quite different according to the maturity of the smoking epidemic.

European registries have also collaborated in comparative studies of survival (EUROCARE), the third cycle of which concerns cases diagnosed in 1990-1994. These data, together with incidence, are used to estimate prevalence of different cancers in Europe.

In June 2003, the future of cancer registration in Europe is well established, although future financial support available *via* the European Union is less sure. One may predict a gradual extension of registry work, beyond the 31.5% of the European population covered, and including at least regional coverage of most countries. The future of collaborative projects, and the extension of the current EUCAN project to a true European Cancer Database, as has been done for childhood cancers with the ACCIS project, is less certain.

Proffered Papers

Breast cancer I

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A combined analysis of three European audits of primary breast cancer management.

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Background: Retrospective audits of adjuvant chemotherapy in breast cancer management have been undertaken in several European countries. Results of a combined analysis of three datasets from Belgium (Chemodose 99), Spain (OSQAR) and the UK (Audit of Primary Breast Cancer Patients) are reported.

Materials and methods: Variables available in all three datasets were identified, their definitions compared and formats edited. They were merged into a single dataset of individual observations. Analysis addressed the incidence of neutropenic events and chemotherapy dose intensity. Multivariate adjusted odds ratios (ORs) of low average relative dose intensity (ARDI) were calculated by robust multiple logistic regression allowing for clustering by audit.

Results: The Belgian audit contributed 661 breast cancer patients, the Spanish audit 1168, and the UK audit 422. Mean age at diagnosis ± SD was 51.5 ± 11.4 years. (Inter-audit range: 48.5 ± 10.9 to 53.1 ± 11.8 years.) Patients were post-menopausal in 51% of cases and 59% had oestrogen receptors. The diagnostic spread was stage I 17%, II 63%, III 15% and IV 5%. Prior or concomitant radiotherapy was reported in 36%. Fifty-four percent received CMF-based regimens, 42% anthracycline-based, and 3% other regimens. One or more neutropenic events were observed in 27% of patients. Repeated neutropenic events were observed in 12%. Age-adjusted incidence of neutropenic events by cycle is shown in Figure 1. Mean ARDI ± SD was 93.2% ± 10.3%. ARDI was d 85% in 17% of patients. Independent associations with ARDI d 85% were confirmed for occurrence of neutropenic events (OR 3.5, 95% CI 2.6-4.7); use of a non-anthracycline-based regimen (OR 1.6, CI 1.1-2.4); prior or concomitant radiotherapy (OR 1.5, CI 1.5-1.6);