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Editorial

Significant Trends in Cancer in the Elderly

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DEMOGRAPHIC CHANGES

THE PROPORTION of the population who are elderly has been rising steadily, particularly since the 1940s, in the Western World. This has been seen more often in females than males and also for those in higher socio-economic classes. Major causes for this dramatic change are the improved life expectancy at every age due to improved socio-economic circumstances and more healthy lifestyles, but also to a wider supply of effective medical care. Furthermore, birth rates only decreased slowly when death rates in most industrialised countries declined at the turn of the century. This demographic change has been less marked or has occurred later within the less prosperous areas of Europe, particularly in Mediterranean countries, and currently, in Eastern Europe, death rates at middle and older age have even increased in the last 20 years. The aging of the population is a more recent phenomenon in most developing or recently industrialising countries, but with great differences among the various East Asian, South American and African countries, again with a socio-economic gradient.

The speed of demographic transition (in the past), prosperity and, related to that, access to care, outlook and life style, and probably also (mild) climate and democracy, are important determinants for the aging of the population. Future increases in the proportion of the population who are elderly will also occur in developing countries.

The proportion of persons over 65 years has increased from approximately 5% to almost 20% of the population in the more prosperous countries of Western Europe, where values of up to 25% can be observed in certain residential areas, for example, along the northern Mediterranean coast in the provinces of Liguria and Triëste (Italy) and rural areas, where young people have left.

RELATION OF INCIDENCE OF MORTALITY WITH AGE

Hormonally and immunologically determined processes of cell proliferation and cell death are largely age-related, in particular, during episodes of growth and reproduction until middle age [1]. The exponential increase of the incidence of epithelial cancers (about 80% of all cancer in most populations) with the increase in age is largely a consequence of multistep carcinogenesis. This usually starts early in life, but is often initiated by, and in interaction with, exposure to exogeneous factors, of which tobacco seems by far the most important [2]. Age at initial exposure(s), and duration and intensity of exposure(s) are essential factors, whereby various genetic mechanisms and, again, lifestyle and social background determine the susceptibility of the host. The latency time of this multistage process varies from months (in children) to more than 50 years.

TRENDS IN INCIDENCE AND MORTALITY

Could the declining death rates from other major diseases, for example ischaemic heart disease, have contributed substantially to the rise in cancer mortality at older ages, especially where there has been improved survival? This rise in mortality, mainly in males, is reported in a recent worldwide overview of cancer mortality trends since 1955 by Levi and associates in this issue of the Journal (pages 652–672). An analysis of incidence and mortality from cancer at age 65 to 74 years in the period 1973–87 pointed in the same direction [3]. However, according to model calculations based on U.S. trends, the decline in heart disease could not have had a great effect on cancer mortality [4], although the assumption that survivors of ischaemic heart disease do not suffer from an increased risk of cancer is questionable. Levi and associates may have overestimated the rise, because death certificates in 1955 probably contained more patients with an unknown cause of death than they would now.

The increasing male/female mortality ratio, which the authors also observed in most countries, with overall rate ratios of approximately 2 between age 60 and 80, is very suggestive of a role for exogeneous influences of which tobacco is rather an indicator than the sole factor. The observed changes would probably have been more impressive if an older standard population (e.g. the European standard population) had been used, which is more suitable for monitoring changes

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in those over 70 years of age. In quite a few populations, marked increases in incidence, e.g. in breast, colorectal, prostate and lung cancer, have occurred in those over 75 years [3]. Improved access to diagnostic services in the more prosperous countries with ample supply of specialised care may have had an upward influence on rates in the elderly.

INCREASING DEMAND FOR MORE COMPLEX CARE

Due to the exponential increase of incidence and mortality over the age of 40 years, particularly among males, and because of the aforementioned changes in incidence and mortality from cancer in most industrialised countries, the proportion of new patients has increased from less than 50% to over 70% among males and from 40% to 60% in females. Approximately 30% of all new patients may now be over 75 years of age and approximately 1% of all new patients are over 90 years, which is already more than the proportion of children with cancer.

The aforementioned demographic and epidemiological developments have already had major consequences for suppliers of health care and health insurance, and will continue to affect them in the near future, unless the much-hoped for breakthroughs occur soon, transforming the current labour-intensive and costly care to 'simple' and cheap care. In the absence of changes in age-specific cancer incidence rates, the demographic changes, described above, amount to an annual increase of the number of new patients of up to 1.5%, or 25% in 15 years [5]. These time spans are usually needed for negotiation and execution of planning measures in constrained health care systems. Medical care for older cancer patients can often be more complex and the clinical significance is tremendous, for example, with respect to multidisciplinarity of care [6]. This also implies that another layer has to be woven through the already multidisciplinary organisation of oncological care, whereby internists, cardiologists, pneumologists and neurologists, and sometimes geriatricians, must often be involved. In part, this is due to the high prevalence of serious co-morbidity, in part due to frailty and limits to bearing 'aggressive' therapy, especially chemotherapy and major surgery [7]. Radiotherapists who suggest that radiation treatment should have few contraindications in the elderly because of bearable side-effects [8] probably do not realize that not all eligible patients, especially frail ones, are referred to them by the surgeons and internists.

CO-MORBIDITY DOES AFFECT OUTCOME

Another problem is that data on outcome of treatment are scarce, largely because only a very small proportion of the elderly, and certainly not those with serious co-morbidity, has participated in clinical trials. Unless medical staff of specialised cancer centres also focus scientific interest on the elderly, the centre may not be properly staffed with respect to, for example, supportive care. Even then, referrals will remain rather selective and other means are necessary for the provision of adequate information on management of elderly patients. Cancer registries that serve all hospitals and nursing homes and thus cover all patients, could or should be equipped to support or carry out clinical research in the elderly, especially those treated in general hospitals; investigating patterns of care and survival, and prognostic factors other than histological type and stage, for example, comorbidity and motives of treatment choice, if discrepant with specific guidelines if any. As an example, the proportion of new patients with cancer diagnosed in 1993–1994 without serious co-morbidity as classified by Charlson and coworkers [9] could be estimated at 61, 49, 32 and 22% for age-groups <45, 45–59, 60–74 and 75+ years, respectively [10].

Almost 10% of cancer patients over 75 also suffered from diabetes mellitus and chronic obstructive pulmonary disease, and approximately 25% from some form of vascular disease. Co-morbidity appeared a strong independent predictor of 3-year survival in women with primary breast cancer [11]. If clinical trials do not include patients with these problems then at least the process of inference and guideline development should take account of them, also with respect to the place of treatment. Considering that there is, generally, albeit not in every population, a worse stage-distribution in the elderly, especially for stomach cancer and the gynaecological cancers, despite a tendency to understaging, this explains the worse relative survival for patients with most tumours. According to the Eurocare study, relative 1- and 5-year survival was clearly worse for most elderly patients than at middle age. This occurred both among patients with tumours whose prognosis was exclusively determined by stage at diagnosis, but also when amenable to chemotherapy [12]. The difference in survival between young and older patients was smaller in countries with good access to specialised care, particularly for patients with slowly growing and/or easily detectable tumours, such as endometrial, colorectal, laryngeal and breast cancer. Differences in stage distribution and relative survival seemed to be clearly smaller for patients diagnosed between 1978 and 1982 in the U.S.A. [13].

CONCLUSION

The increasing incidence of and mortality from cancer in the elderly will, together with the increasing number of elderly in most countries of the world, create interesting and complex clinical problems for doctors, nurses and other health workers. If met adequately, for which there should be enough 'room', elderly patients do not have to experience a worse (relative) survival experience. If the presence of co-morbidity, e.g. cardiovascular or pneumological conditions, also helps to detect cancer at an early stage, curative therapy may be facilitated, although some of these cancers may be slowly growing tumours, which deserve a 'wait and see' policy.

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