6.5 Cancer

See Background Paper 6.5 (BP6_5cancer.pdf)

Background

Cancer (a term that includes over 100 types of malignancy) is one of the major burdens of chronic disease in Europe and the world (see Chapter 5 and associated Background Paper). It is estimated that in 2012 in the EU27 countries over 700 000 men and over 550 000 women died of cancer. These numbers are slightly higher than those recorded for 2007 (an increase of 1.5% in men and 2% in women). This increase in cancer deaths can be explained by the ageing of the EU population. When these cancer mortality rates are adjusted for age, they are expected to show a substantial improvement, falling from 154 per 100 000 in men in 2007 to 139 per 100 000 in 2012 (a drop of 9.6%) and from 91 per 100 000 to 85 per 100 000 in women (a drop of 6.5%).

In men, improvements in age-adjusted mortality rates (in 2007 to 2012) are expected to include significant reductions for five cancer types: stomach cancer (-20%), leukemias (-11%), lung and prostate cancer (-10%) and colorectal cancer (-27%). In women, over the same period, age-adjusted mortality rates are also expected to decline for the following cancer types: stomach cancer (-23%), leukemias (-12%), uterus and colorectal cancer (-11%) and breast cancer (-29%). However, increases are expected in age-adjusted mortality rates for lung (+7%) and pancreatic (+3%) cancers in women.

There is some disparity in cancer mortality rates between the Central European post-2004 EU accession countries (particularly Poland) and countries of the former EU15. This disparity was seen in the early 2000s and is expected to continue, at least in proportional terms. Furthermore, trends in cancer survival rates also vary across the EU. As of 2009, the relative excess risk of death from cancer was 28% higher in Eastern Europe (defined by reference [3] as the Czech Republic and Poland) than in Central Europe (defined as Austria, Belgium, France, Germany, the Netherlands and Switzerland by reference [3]). It seems possible that differences in survival rates between Eastern and Central European countries persist largely because of fewer resources for health care services and recent dysfunction in the health care systems of Eastern European states. In Europe as a whole, the relative excess risk of death was 60% higher for patients aged 55 to 99 years than for those aged 15 to 54 years; and male cancer patients in Europe had a significantly higher risk of dying than women. These regional disparities are inherently subject to controversy. The idea of using cancer survival as a means of measuring the effectiveness of health systems is a major topic of research and discussion.

In Europe, any spotlight on high burden cancers such as breast, lung, prostate, and colorectal cancer must also keep a focus on the incidence of rare cancers. In the EU27 countries there are about 500 000 new cases of rare cancers a year (for definitions of rare cancers see http://www.rarecare.eu/default.asp). In the EU27 countries today
about 4.3 million patients are living with a diagnosis of a rare cancer, accounting for 24% of the total EU cancer prevalence. Over all age groups, five-year survival rates are 48% for rare cancers and 64% for more common cancers.\textsuperscript{5} The low incidence of individual rare cancers is a major obstacle to conducting clinical trials to develop effective treatments (see also Chapter 6.19 on rare diseases).

Meanwhile, there are an estimated 175 000 new cases of childhood cancers every year worldwide.\textsuperscript{6} Although 80% of children in developed countries now survive cancer as a result of the latest treatment regimens, 60 000 children in developing countries die each year from cancers that are often curable.\textsuperscript{6} In the 1990s, overall survival rates for children with cancer were 64% in Eastern Europe and 75% in Western Europe, with differences between regions for all tumour groups. There is a critical need for better access to care and for more research in childhood cancer. It is important to close the gaps in survival rates among children with cancer both at the European level and worldwide.\textsuperscript{6,7} In this context, for both adults and children, there is a need for research in survivorship issues as the long term side effects of cancer therapies is an important research subject. In addition to survivorship Quality of Life issues such as end of life care and palliative therapy are worthy of research.

\textit{Developments since 2004}

Since the 2004 Priority Medicines Report, there have been a number of major therapeutic breakthroughs. An increasing number of targeted therapies – in combination with chemotherapy – have proved to be effective against common cancers. These include:

- Efforts to attack more than one target in a molecular pathway that is critical for tumour survival and growth can now be achieved through the use of multi-targeted drugs. These include: regorafenib (for patients with metastatic colorectal cancer or GI stromal cancer); and crizotinib (which offers promising activity against neuroblastoma).
- Targeted agents have also shown benefit when used as monotherapy (e.g. for anaplastic lymphoma kinase gene-mutated non-small cell lung cancer) where the pace of research progress in this area has been remarkable.
- In 2005, the first vaccine to prevent infection with human papillomavirus (HPV), which is present in virtually all cervical cancers, was approved by the U.S. Food and Drug Administration (FDA). The viral strains used in the HPV vaccine together account for approximately 70% of cervical cancer cases worldwide. In February 2013, the GAVI Alliance announced it would provide HPV vaccine as part of its portfolio.
- In 2009, trastuzumab (Herceptin\textsuperscript{®}), which is widely used to treat HER2-positive breast cancer, was proven effective as the first targeted therapy for stomach cancer.
- In 2010, the FDA approved sipuleucel-T (Provenge\textsuperscript{®}), a cancer vaccine for metastatic hormone-refractory prostate cancer. This is a true therapeutic vaccine in that it boosts the body’s immune system to attack cancer cells in the body.
6. Priority diseases and reasons for inclusion

- The entire cancer therapeutics field is moving more toward targeted therapies and immunotherapy. The monoclonal antibody ipilimumab was approved by the FDA in March 2011 to treat patients with late-stage melanoma that has spread or cannot be removed by surgery. This is an area of high unmet medical need.

In many of the countries where social and economic transition is leading to a shift in the pattern of disease, the cancer burden is also changing. The result is a reduction in infection-related cancers and an increase in cancers that are more associated with reproductive, dietary, smoking and hormonal factors. Targeted interventions can lead to a decrease in the projected increases in cancer burden through effective primary prevention strategies, together with the implementation of vaccination, smoking prevention, early detection and effective treatment programmes (see Figure 6.5.1).

**Figure 6.5.1: Major cancers (by incidence in 2008: male/female) for various developmental indices.**

Remaining challenges

Cancers are a global public health concern, in large part because of the preventable nature of some of the most common cancers and the high treatment costs of many cancers, which are rarely affordable by patients themselves and can only be made universally accessible through health insurance or national health schemes. Of these, tobacco use probably remains the most important avoidable cancer risk. In the twentieth century, approximately 100 million people worldwide died from tobacco-associated diseases (cancer, chronic obstructive lung disease, heart disease and stroke) (See Chapter 6.17).

The pharmaceutical industry has invested heavily in finding new pharmaceutical treatment options and the EU does not at present match the private or public funding levels of the United States with regard to cancer therapeutic research and development.

It is entirely possible that in resource-constrained countries without specialized services, cancer could be partly prevented and treated using lessons learned from the public health battle against HIV/AIDS, for example by using primary and secondary caregivers to screen and continue treatment, use of generic drugs, and application of regional and global mechanisms for financing and procurement. In those countries with national health insurance, cancer treatment can be included in the insurance cover, with an emphasis on a benefits package targeting the poorest populations. The availability of expensive immune and targeted therapies should not be limited to patients in high-income countries. However, access will depend on efforts to reduce costs, increase access to health services and strengthen health systems in low- and middle-income countries.

For the EC, in the period 2014 to 2020, one challenge will be to understand the inequalities between EU countries in levels of cancer control and care, including screening and follow-up for breast, cervical and colorectal cancer. Identification and promotion of good practice in prevention, diagnosis, treatment and care of all cancer types, including paediatric cancers, across the EU will be important. In addition, collaborations between EU countries can provide the “economies of scale” needed to manage this condition more effectively across all parts of the health care system.

References


6. Priority diseases and reasons for inclusion


