Cancer prevalence and survival in Austria –

Results from the Austrian National Cancer Registry

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Extended abstract

Introduction

Every year about 38.000 persons are diagnosed with cancer, half of them getting the diagnose cancer of the large bowel, lung-, breast- or prostate cancer. The risk of developing any malignancy before the age of 75 is about 29 per cent, and is much higher for men than for women. 33 in 100 men will be diagnosed with cancer before the age of 75, compared to 23 in 100 women.

Information on cancer prevalence and survival is of primary interest for health care planning and resource allocation because it identifies the burden of the disease on the population and health care system. Prevalence represents new and pre-existing cases alive on a certain date or period, in contrast to incidence which reflects new cases of a condition diagnosed during a given period of time. Prevalence is a function of both the incidence of the disease and survival.

The EUROCARE study database, collecting survival data on cancer patients diagnosed in Europe since 1978 to the early 2000s, included also data from the Austrian National Cancer Registry from 1990 up to 2002 [1]. According to EUROCARE, Austria (56%) ranks third after Sweden (58%) and Iceland (57%) regarding 5-year cumulative relative survival.

The Austrian National Cancer Registry, which is a population based registry, collects data since 1969. Since 1983 it has been possible to use the information on cancer deaths from the causes of death statistics. Therefore the published data start in 1983, being reasonably complete and of good quality. The registry includes data on the incidence of cancer cases and on their vital status [2].

The aim of the present paper is to illustrate and comment on the results of cancer prevalence and survival analyses for Austria by year of diagnosis, follow-up interval, sex, age and stage at diagnosis.

Data

Data is reported by all hospitals and is based on information provided in the patient's medical record. The cancer registry data (CR) is linked with the data of the causes of death statistics on a regular basis. Hence, basis for the present analyses is the incidence data of the CR with years of diagnosis between 1983 and 2009 with vital status information up to 31 December 2010 including data from 925 846 cancer cases (i.e. malignant invasive tumours,

incl. DCO-cases[1]) in 772 441 persons. The difference between the number of tumours and persons is caused by multiple tumours.

Methods

Cancer prevalence comprise new and pre-existing cases alive on a certain date or during a certain period, in contrast to incidence which reflects only new cases of a condition diagnosed during a given period of time. Cancer prevalence is calculated on the basis of registered cases in the Austrian National Cancer Registry and the follow-up of their vital status. Hence, all persons diagnosed between 1983 and 2009 and alive on the reference day 31 December 2010 have been included in the analysis. The follow-up period is 26 years.

Relative survival – the ratio of the observed survival to the survival expected in the general population of same age and sex – was calculated in order to eliminate the effect of competing causes of mortality. In calculating relative survival life table methods for estimating observed survival and Ederer II for estimating expected survival [2] were applied, using calendar year-, sex- and age-specific life tables provided by Statistics Austria. Observed and relative survival rates are calculated as interval specific survival rates per year of survival and as cumulated survival rates. The focus in the paper is on cumulative relative survival rates as they reflect the overall quality of a health care system in a country and therefore are used for international comparison and for the evaluation of time trends.

Results

Of the 772 441 persons 284 281 were alive at the end of 2009, thereof 149 735 women and 134 546 men. This means that 3.4 out of 100 Austrians alive on the reference day have had a prior cancer diagnosis.

Breast cancer is the most frequent cancer localization (59 072) in women, followed by cancer of the uterus (20 734) and cancer of the colon (18 033). For men living with cancer, prostate cancer was the most frequent localization (51 218), followed by cancer of the colon (20 039) and the bladder (11 216).

Women affected by cancer survive their diagnosis for a considerably longer time span than men. This is mainly caused by breast cancer, which is not only the most frequently diagnosed cancer in women but also characterized by good survival chances.

The cancer survival analysis detected several crucial trends, which are widely in line with international findings. In the last 25 years a markedly gain in cancer survival was observed, but we have to consider that all cancers combined represent a broad variety of cancer diseases. The current analysis shows an improvement in 5-year cumulative relative survival from diagnoses in 1985 to diagnoses in 2005 increasing from 44% to 62% (+18 percentage points) for both sexes together, from 38% to 61% in men, and from 49% to 63% in women.

Cancer stage at diagnosis, as well as age and sex proved to be strong predictors of overall cancer survival. Generally, and consistent with previous findings, survival decreases with advanced age at diagnosis [4, 5]. Furthermore cancer survival shows a strong interaction of age and sex. Time trends indicate the poorest gain in survival for older women, as reported

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[1] If a Death Certificate Notification (DCN) is reported with a cancer cause of death that cannot be found in the registry, the case should be followed back to the hospital. Follow back is the process of actively searching for additional information on DCNs at the patient and disease level and updating the cancer database when possible. If additional information cannot be obtained, the case is a true Death Certificate Only (DCO).

in formerly published studies [6]. Generally, women have an advantage in cancer survival, but the sex difference has diminished within the last decades as the gain in survival has increased stronger in men. The strongest predictor of cancer survival is cancer stage at diagnosis. It is distressing that the survival probability for patients whose tumors had already set metastases at diagnosis did not really change over the years.

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