

Breast Cancer Incidence Estimation in Castilla-La Mancha (CLM) from Mortality and Survival Data

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Abstract : Introduction: Breast cancer is a leading cause of death in CLM. (2.8% of all deaths in women and 13,8% of deaths from tumors in womens). It is the most tumor incidence in CLM region with 26.1% from all tumours, except nonmelanoma skin (Cancer Incidence in Five Continents, Volume X, IARC). Cancer registries are a good information source to estimate cancer incidence, however the data are usually available with a lag which makes difficult their use for health managers. By contrast, mortality and survival statistics have less delay. In order to serve for resource planning and responding to this problem, a method is presented to estimate the incidence of mortality and survival data. Objectives: To estimate the incidence of breast cancer by age group in CLM in the period 1991-2013. Comparing the data obtained from the model with current incidence data. Sources: Annual number of women by single ages (National Statistics Institute). Annual number of deaths by all causes and breast cancer. (Mortality Registry CLM). The Breast cancer relative survival probability. (EUROCARE, Spanish registries data). Methods: A Weibull Parametric survival model from EUROCARE data is obtained. From the model of survival, the population and population data, Mortality and Incidence Analysis MODEL (MIAMOD) regression model is obtained to estimate the incidence of cancer by age (1991-2013). Results: The resulting model is: $I_{x,t} = \text{Logit} [\text{const} + \text{age1} * x + \text{age2} * x^2 + \text{coh1} * (t - x) + \text{coh2} * (t-x)^2]$ Where: $I_{x,t}$ is the incidence at age x in the period (year) t ; the value of the parameter estimates is: const (constant term in the model) = -7.03; age1 = 3.31; age2 = -1.10; coh1 = 0.61 and coh2 = -0.12. It is estimated that in 1991 were diagnosed in CLM 662 cases of breast cancer (81.51 per 100,000 women). An estimated 1,152 cases (112.41 per 100,000 women) were diagnosed in 2013, representing an increase of 40.7% in gross incidence rate (1.9% per year). The annual average increases in incidence by age were: 2.07% in women aged 25-44 years, 1.01% (45-54 years), 1.11% (55-64 years) and 1.24% (65-74 years). Cancer registries in Spain that send data to IARC declared 2003-2007 the average annual incidence rate of 98.6 cases per 100,000 women. Our model can obtain an incidence of 100.7 cases per 100,000 women. Conclusions: A sharp and steady increase in the incidence of breast cancer in the period 1991-2013 is observed. The increase was seen in all age groups considered, although it seems more pronounced in young women (25-44 years). With this method you can get a good estimation of the incidence.

Keywords : breast cancer, incidence, cancer registries, castilla-la mancha

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