Comparison of four electronic healthcare databases in Europe using standardized protocols: a descriptive study on the incidence of cancer

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Background

• There are several national cancer registries available across Europe, but information on cancer incidence from routine electronic healthcare record (EHR) databases (DBs), such as GPs and comparisons across different databases are rather scarce.
• It is important to compare this information, and also benchmark this against national registries in order to assess its usefulness for pharmacoepidemiological studies on cancer.

Objective

To investigate sources of variation in the incidence of Cancer across routine EHR DBs in Europe, using a standardized methodology.

Methods

• We used four EHR DBs from the United Kingdom-UK (THIN and CPRD), the Netherlands-NL (Mondriaan: AHC), and Denmark-DK (National Prescription Registry-NPR).
• Cancer incidences were calculated for the whole population between 2003 and 2008 and were stratified by sex, age and three cancer types were also studied (breast, prostate and colon), and results given by person-years (PY).
• Overall incidence rates were age and sex standardized to the European 2008 reference population.

Results

• The initially observed variation in cancer overall incidence decreased after standardization and ranged for any cancer from 53.2/10,000PY in the UK-CPRD in 2001, to 78.7/10,000PY in the NL-AHC in 2004 (figure 1).
• The overall incidence of cancer slightly increased in Denmark NRP and in the UK (both THIN and CPRD) between 2003-2008, but not for the NL-AHC (figure 1).
• The incidence of cancer overall was higher for women in all DBs (figure 2).
• In 2008, the overall cancer incidence increased until the age of 80 years, and decreased subsequently (figure 3).
• In the same year, the incidence of breast cancer in women was the highest in DK-NPR (21.7/10,000PY), as well as prostate cancer in men (14.6/10,000PY), and the incidence of colon cancer was the highest in NL-AHC (9.7/10,000PY).

Conclusion

• The incidence of cancer as measured in four routine EHR-DBs differed between the three European countries using a standard methodology, despite the convergence seen after standardization for age and sex.
• Overall cancer incidence hardly increased over time for most of the European countries.
• From our analysis we can infer that incidences are in line with the European cancer registries available.

Disclosure

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For more information on the PROTECT project please go to: Web: www.imi-protect.eu E-mail: protect_support@ema.europa.eu