Use of Health Care Administrative Databases to Estimate the Burden of Diabetes Mellitus: A Population-Based Study

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Objectives
To assess the epidemiologic and economic burden of diabetes mellitus (DM) from a large population-based study.
Methods
Lombardy Region includes 9.9 million individuals. Its DM population was identified through a data warehouse (DENALI), which matches with a probabilistic linkage demographic, clinical and economic data of different Healthcare Administrative databases. All individuals who during the year 2000 had an hospital discharge with a IDC-9 CM code 250.XX, and/or two consecutive prescriptions of drugs for diabetes (ATC code A10XXXX) within one year, and/or an exemption from co-payment health care costs specific for DM, were selected and followed up to 9 years. We calculated prevalence, mortality and health care costs (hospitalizations, drugs and outpatient examinations/visits) from the National Health Service's perspective.
Results
A total of 312,223 eligible subjects were identified. The study population (51% male) had a mean age of 66 (from 0.03 - 105.12) years at the index date. Prevalence was 0.4% among subjects aged <45 years, 3.0% (46-55 years), 7.2% (56-65 years), 11.1% (66-75 years), 12.2% (76-85 years) and 10.1% (>85 years). Overall 43.4 deaths/1,000 patients/year were estimated, significantly ($p<0.001$) higher in men than women. Overall, 3,315€/patient-year were spent on average: hospitalizations were the cost driver (54.2% of total cost). Drugs contributed to 31.5%, outpatient claims represented 14.3% of total costs. As regards hospital costs, 35.6% was attributable to admissions for cerebro/cardiovascular reasons, 4.3% to admission for DM reasons, and 60.1% to any other reason. Class C drugs contributed to 33.5% of total drug costs, 21.8% was attributable to class A (16.7% to class A10) and 4.3% to class B (2.4% to class B01) drugs.
Conclusions
Merging different administrative databases can provide with many data from large populations observed for long time periods. DENALI shows to be an efficient instrument to obtain accurate estimates of burden of diseases such as diabetes mellitus.