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Register-based studies of epidemiology and health care costs in type 2 diabetes

AKADEMISK AVHANDLING

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ABSTRACT

Type 2 diabetes is a public health problem of great magnitude. Globally, prevalence of the disease is increasing, mainly as a result of population ageing and increased rates of obesity. The overall aim of this thesis was to study the epidemiology and health care costs of type 2 diabetes and its complications in Uppsala county, Sweden using register data from clinical practice. A total of 11 856 patients with type 2 diabetes were retrospectively identified in computerised records from 26 primary care centers kept between years 1993 and 2004.

Within Paper I, we estimated the prevalence and incidence of type 2 diabetes and its complications during years 1996-2003. Crude population prevalence of type 2 diabetes was found to increase from 2.2% to 3.5% but diabetes incidence did not exhibit any increase. Instead, increasing prevalence was a product of the number of patients diagnosed with type 2 diabetes each year being higher than the number of deaths among type 2 diabetic patients, as well as of declining mortality.

Within Paper II, we examined trends in control of glycemia, total cholesterol and blood pressure among type 2 diabetic study patients during years 1996-2005. Over the observation period, the proportion of patients with adequate control increased from 38% to 56% for glycemia, from 8% to 27% for total cholesterol, and from 8% to 11% for blood pressure. Despite this increase, a substantial proportion of patients did not achieve adequate control, in particular with regard to blood pressure.

Within Paper III, we examined medical resource use of study patients and estimated annual costs of health care. The average type 2 diabetic patient made 2 GP visits and 2 outpatient hospital visits per year. The mean (SD) total health care costs incurred by study patients were estimated at € 602 (€ 537) in year 2004. Though a minority (16%) of patients were hospitalised during the year, inpatient care was the major contributor to costs, accounting for 57% of total health care costs.

Within Paper IV, we determined the immediate and long-term impact of acute myocardial infarction (AMI) and stroke on health care costs in patients with type 2 diabetes. Suffering an AMI was associated with a 4.1-fold increase in total health care costs during the year of a first AMI and a 6.5-fold increase in total health care costs during the year of a first stroke. For both AMI and stroke, the increase in costs was largely accounted for by inpatient care.

This thesis has contributed to increased knowledge of the epidemiology of type 2 diabetes in Sweden and has provided estimates of health care costs which may be used to inform capacity planning and as input into economic evaluations. This thesis also illustrates how computerised medical records from real-life clinical practice can be used to retrospectively identify cohorts of patients with a specific disease, how record linkage can be used to retrieve information from complementary health care registers, and how epidemiological and health economical research questions can be studied through analysis of the resulting datasets.