Studies in the Danish Hip Arthroplasty Registry

Alma Becic Pedersen

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Official opponents: Torben Jørgensen, Anders Odgaard and Over Furnes, Norway.

Tutors: Ulf Lucht, Søren Paaske Johnsen, Kjeld Søballe and Søren Overgaard.

Correspondence: Alma Becic Pedersen, Kantorparken 12, 2. th., DK-8240 Risskov, Denmark.

E-mail: abp@ag.aaa.dk

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ABSTRACT

This PhD dissertation is based on four studies carried out at the Department of Clinical Epidemiology and the Department of Orthopaedics, Aarhus University Hospital, University of Aarhus.

The aims were to examine the data quality of the Danish Hip Arthroplasty Register (DHR) and its usability for study of the total hip arthroplasty (THA) epidemiology, to estimate the incidence of primary THAs and revisions in Denmark and the existence of any regional variation in the period 1996-2002, and to estimate the expected needs for primary THA in Denmark in the coming decades. Furthermore, vi assessed whether the effect of the possible predictors for THA failure, including sex, age, diagnoses for primary THA, and comorbidity vary during the short and long follow-up after primary THA surgery.

The overall registration completeness for primary THAs and/or revisions was 94%. Overall, the diagnoses for primary THA could be confirmed in 84% of the reviewed patients. However, postoperative complications were only confirmed in two thirds of the reviewed patients.

The incidence of primary THAs and revisions increased by 30% and 10% during the study period. The relative increase in incidence of primary THAs was found to be similar in both females and males. The increase was seen for all age groups, but was highest among patients aged 50-59 years. A decrease in incidence was seen in patients with rheumatoid arthritis, who underwent primary THA. We found substantial regional differences in the incidence of THA procedures which could not be explained by differences in age and gender distribution of the county populations, or by a range of patient and healthcare system related factors.

Assuming that the annual age- and sex-independent increase in the incidence seen in the period 1996-2002 continues, the incidence of primary THA was estimated to increase by 210% in 2020 compared with 2002.

We found that males or high comorbidity index were time-independent predictors of THA failure, and remained strong predictive factors for failure irrespective of the follow-up period. In contrast, age and diagnoses were time dependent predictors of THA failure with a varying impact during different time windows after primary THA.

We conclude that the DHR particularly in the combination with other data sources used in this dissertation is a potentially valuable tool for quality improvement of THA surgery and research.