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Metody wykorzystania danych medycznych do analiz ekonomicznych w cukrzycy - od kosztów choroby do kosztowej efektywności.

Application of medical data for economic analysis in diabetes - from cost of disease to cost-effectiveness

Rozprawa doktorska na stopień doktora
w dziedzinie nauk medycznych i nauk o zdrowiu
w dyscyplinie nauki o zdrowiu
przedkładana Radzie Dyscypliny Nauk o Zdrowiu
Warszawskiego Uniwersytetu Medycznego

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Warszawa, 2023 rok

3 Streszczenie w języku angielskim

Introduction

An aging society and a growing number of people with type 2 diabetes pose a growing challenge for the healthcare system in Poland, both for organizational and cost-related reasons. In Poland, over 3 million adults have diabetes, and it is estimated that 20% of them remain undiagnosed. In recent years, many changes have been implemented in access to medical technologies for the treatment and monitoring of diabetes patients, as well as in the healthcare system itself. These changes aim to optimize the healthcare system, as the burden of diabetes continues to increase year by year. Diabetes and its complications not only directly impact the healthcare system but also generate indirect costs associated with the inability to work for the affected individuals and their caregivers.

Cost analysis of diabetes is based on the utilization of medical data, which provide essential information for assessing and understanding the scale and impact of this disease on healthcare systems. Medical data can be also used for predictive analysis and cost effectiveness analysis to better plan limited healthcare resources.

Objective of the Study

The aim of the doctoral dissertation was to analyze and apply methods for utilizing medical data in cost of illness study focusing on diabetes. The main objective of the study was achieved through three stages. In the first stage, the methods for utilizing medical data to assess the costs associated with diabetes were analyzed, both in terms of cost of illness and the application of cost-effectiveness methods. In the second stage, the insights from the literature review were applied in practice to evaluate costs and plan resources in diabetes patient care. In the third stage, the current state of diabetes care in Poland over the past 5 years was summarized.

Methodology

In the first stage a literature review on the methodology cost of illness studies including both direct and indirect costs was performed. The methods for estimating indirect costs related to caregivers were also reviewed. The review of methods also included predictive cost analysis based on pharmacoeconomic modeling.

In the second stage of the study, the methods available in the literature were applied in practice through three data analyses. The first analysis utilized data from the National Health Fund (NFZ) and the Social Insurance Institution (ZUS) to estimate the direct and indirect costs of diabetes and its complications in Poland using these sets of

data. This was the first study in Poland to evaluate both the direct costs of diabetes treatment and the scale of indirect costs. In the subsequent analysis, data from long-term observational studies and the CORE diabetes model were used to estimate the cost-effectiveness of intensifying glycemic control in Polish health care setting. In the second stage of the study, a review of available literature and published documentation from the Ministry of Health and the National Health Fund (NFZ) was used to summarize the current state of diabetes patient treatment in Poland, with a focus on the past 5 years. NFZ data was also utilized to estimate changes in the reimbursement of therapeutic substances used in diabetes patient care. In the last stage, the cost-effectiveness analysis method was applied to compare the costs of glycemic control using different substances from the SGLT2 class.

Conclusions

The available cost analysis methods allow for a comprehensive assessment of diabetes costs, both in the healthcare system and in terms of indirect costs. The main barrier to conducting such analyses is data accessibility, which presents a particular challenge in estimating indirect costs related to absenteeism and disability pensions. It is especially challenging in estimating caregiver costs. Access to data from long-term observational clinical trials also enables modeling of long-term care costs and cost-effectiveness comparisons.

Diabetes costs are increasing year by year, but efforts are also being made to optimize the healthcare system. Further cost analysis of diabetes, both direct and indirect, is necessary to determine the pathways for the development of diabetes care system.