

PHARMACOECONOMIC ANALYSIS OF TYPE 2 DIABETES MELLITUS BY VILDAGLIPTIN MEDICATION IN KAZAKHSTAN

A. Yelekenova^{1*}, C. Bektur², T. Nurgozhin²

1) School of Humanities and Social Sciences, Nazarbayev University, Astana, Kazakhstan; *ayelekenova@nu.edu.kz; 2) Center for Life Sciences, Nazarbayev University Astana, Kazakhstan

Introduction. This study is aimed to determine cost-effectiveness of vildagliptin in comparison with sitagliptin for the treatment of patients with type 2 diabetes mellitus (T2DM) from the perspective of Ministry of Health of the Republic of Kazakhstan

Materials and methods. Markov model developed in MS Excel was used to study transfer of patients from one treatment strategy to another and for conversion of obtained data into economic calculations of costs and quality of life outcomes. The study was conducted from the perspective of the Ministry of Health. All costs are expressed in tenge, health benefits were calculated according to the decrease of HbA1c index [1], that is consistent with the metrics of cost-effectiveness in previously published economic analysis[2]. Future costs were discounted by 3% per year according to WHO recommendations. The analysis was based on the calculation of cost-effectiveness coefficient: $CER = Cost/Ef$ [3]. To identify the impact of the change in initial parameters of the project to the final characteristics, one-way sensitivity analysis was used.

Results and discussion. According to the results of cost-effectiveness analysis, discounted costs of treatment of one patient with T2DM with combination therapy of sitagliptin+metformin amounted to 73,528 KZT/year, while treatment with combination therapy of vildagliptin+metformin forming amounted to 71,017 KZT/year. As a result, CER in the case of sitagliptin is approximately 93 thousand KZT/QALY, and 90 thousand KZT/QALY in the case of vildagliptin. Decline in CER indicator that characterizes costs of reaching unit of effectiveness in case of using vildagliptin comprises 2,413 KZT, which shows the pharmacoeconomic advantage of the strategy.

Conclusions. Pharmacoeconomic analysis has shown that the use of vildagliptin in combination therapy with metformin is more economically beneficial than the use of sitagliptin according to CER indicators, which is conditioned by the advantages in the safety profile. The use of vildagliptin in T2DM patients therapy in usual clinical practice in Kazakhstan is rational from the pharmacoeconomic perspective.

References.

1. Teramachi H., Ohta H., Tachi T., *et.al.* Pharmacoeconomic analysis of DPP-4 inhibitors. *Pharmazie*, 2013, 68(11): 909-15.
2. World Health Organization (2003). *Making Choices in Health: WHO guide to cost-effectiveness analysis/* edited by T.Tan-Torres Edejer, *et.al.* WHO Press. Geneva.
3. Gold M.R., Siegel J.E., Russel L.B. *at al.* *Cost-effectiveness in health and medicine*, 1996, NY, Oxford University Press.