

Okulistyczne aspekty terapii inhibitorami kotransportera sodowo-glukozowego 2. (SGLT-2) – nową grupą leków hipoglikemizujących

Ophthalmological Aspects of Therapy with Sodium Glucose Cotransporter 2 (SGLT-2) Inhibitors – a New Group of Hypoglycemic Drugs

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Summary:

Sodium glucose cotransporter 2 is the major protein responsible for glucose reabsorption in the kidneys. Its inhibitors – gliflozins – constitute a new group of hypoglycaemic drugs. The aim of the study is a literature review of ophthalmic aspects of diabetes therapy with the use of this newly introduced group of drugs.

Literature data report the expression of the sodium glucose cotransporter 2 not only in the kidneys, but also in non-renal tissues, e.g. in the retina and the lens. Moreover, they indicate its participation in the pathogenesis of diabetic retinopathy.

In turn, sodium glucose cotransporter 2 inhibitors, according to the available literature, reduce edema and reduce the loss of pericytes of the retina, and thus may prevent pathological changes occurring in the retina in the course of diabetic retinopathy. The results of clinical trials provide evidence of their effectiveness in the treatment of ocular complications of diabetes, i.e. in preventing the development of diabetic retinopathy, reducing diabetic macular edema, and even inhibiting cataract progression. In addition, the literature provides evidence suggesting a beneficial effect of this new group of hypoglycemic drugs on diabetic retinopathy beyond the control of concentration of blood glucose per se, such as 1. improved energy metabolism, reduction of hypoxia, anti-inflammatory and anti-oxidant effects in the retina by inducing mild ketonemia, 2. as well as a reduction of production of reactive oxygen species via the ERK1/2/cPLA2/AA/ROS cell pathway.

Due to the innovativeness of the topic, the number of literature data in its scope is limited. Therefore, it should be kept in mind that the conclusions may not be complete.

Key words:

diabetic retinopathy (DR), sodium glucose cotransporter 2 (SGLT-2), gliflozins.

Słowa kluczowe:

retinopatia cukrzycowa, kotransporter sodowo-glukozowy 2. (SGLT-2), gliflozyny.