

THE POSSIBILITIES OF METFORMIN EFFICACY INCREASE BY HERBAL PREPARATIONS ON THE EXPERIMENTAL MODELS OF METABOLIC DISORDERS

Mishchenko M. V., Tovchiga O. V., Shtrygol' S. Yu.
National University of Pharmacy, Kharkiv, Ukraine
olga_234@mail.ru

Introduction. Diabetes mellitus and metabolic syndrome are widely-spread problems of the modern society. As the patients are becoming more interested in traditional herbal medicines, the verification of their effects is needed. Phytotherapy in the most cases is supplementary, but it may augment the efficacy of the commonly used antihyperglycemic drugs. Goutweed is a perennial herb of the Apiaceae family that has been used in folk medicine for a long time. Our work is focused on the pharmacological study of goutweed preparations. Goutweed tincture renders protective activity in alloxan-induced diabetic mice, the tincture shows hypoglycemic properties under the conditions of metabolic disorders induced by fructose and hydrochlorothiazide in rats.

Aim. The aim of this work is to determine the efficacy of *Aegopodium podagraria* L. tincture and its combination with metformin in animals with the disorders of carbohydrate and lipid metabolism.

Materials and methods. Dexamethasone-induced model of the metabolic disorders was used. Oral glucose tolerance test was performed after the treatment of the animals with metformin, goutweed tincture or their combination. Glucose was measured in blood plasma samples using glucose oxidase method. The total area under the blood glucose curve was calculated using the trapezoidal method, the average glycemia value was also calculated. Given that glucose and lipid metabolism disorders are interrelated in the pathogenesis of metabolic syndrome and other “disease of civilization,” the same test was also performed in dyslipidemic animals.

Results and discussion. In dexamethasone treated rats, goutweed tincture combined with the respectively low dose of metformin increased the effect on the latter on the basal glycemia. In the oral glucose tolerance test the lowest area under glucose curve and average glycemia value were seen in these group. The efficacy of the investigated combination was also partially manifested in dyslipidemic animals (the reduction in area under glucose curve).

Conclusion. Goutweed tincture is able to partially increase the efficacy of metformin in dexamethasone treated and dyslipidemic rats. Further research is needed to establish the mechanisms of interaction.