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Galega officinalis extract regulate the diabetes mellitus related violations of proliferation, functions and apoptosis of leukocytes

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Abstract

Background

An impaired leukocytes function is the factor causing the susceptibility of patients with diabetes mellitus to infections. The utmost importance for the understanding of the immunological processes involved in diabetes pathogenesis is to give the characteristics of the immunological profile and changes therein, during the course of disease. Long-used in folk medicine to treat diabetes *Galega officinalis* L. has been chosen for the correction of the immune system dysfunction.

Methods

The experiments were conducted on male Wistar rats. Fractionation of bone marrow cells suspension was performed in a three-layer ficoll–sodium amidotrizoate density gradient. The lymphocytic-granulocytic cells proliferative activity was studied using enzyme immunoassay with 5-bromo-2'-deoxyuridine (BrdU). For staining of bone marrow preparations May-Gruenwald-Romanowsky-Giemsa (Pappenheim) method was used. To evaluate the content of cationic proteins and myeloperoxidase in neutrophilic leukocytes

cytochemical studies were performed. Content of tumor necrosis factor alpha was carried out by immuno-enzymatic analysis. Lymphocytes apoptosis was examined by fluorescent analysis using annexin V.

Results

Diabetes mellitus development was accompanied with violation of neutrophils and lymphocytes proliferation, increased activity of myeloperoxidase and enhanced apoptosis process. Administration of *Galega officinalis* extract under the condition of diabetes promotes the restoration of neutrophils bone marrow pool and the reduction of lymphoblasts number and causes inhibition of the lymphocytes apoptosis process.

Conclusions

Investigated medicine has a pronounced immunocorrective effect under the conditions of diabetes mellitus and can become the basis for creating a new generation of antidiabetic drugs.
