CYTOKINES AS BIOMARKERS OF INFLAMMATION UNDER OBESITY DEVELOPMENT AND THE INFLUENCE OF KIDNEY BEAN (PHASEOLUS VULGARIS) POD EXTRACT ON THEIR CONTENT IN ANIMALS BLOOD

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Introduction. As it is known consumption of a high-calorie diet can lead to obesity development. This pathology is also considered as an inflammatory disease in which fatty tissue plays an important endocrine role through the production of numerous biologically active molecules known as adipokine. In recent years, worldwide scientific interest focuses on the study of the properties of plant extracts due to the multifactorial nature of their therapeutic effects on the obesity and its concomitant diseases. Plant extracts unlike synthetic drugs practically non-available toxic effects\(^1\). Available raw for the drugs development is kidney beans (Phaseolus vulgaris).

Materials and methods.

The study included white nonlinear male rats with initial weighing of 135-160 g. During first seven days, all rats received standard food “Purina rodent chow” and water ad libitum. At the 8th day the population was divided into 2 groups. Animals of the first group (“Control”) was fed with a standard food and water ad libitum during the experiment. Animals of the second group (“HCD”) were on a high-calorie diet\(^2\) and water ad libitum. Animals of the third group (“HCD+Ex”) were also on high-calorie diet and water ad libitum. After 4 weeks of experiment they started to receive the extract of P. vulgaris (200 mg / kg). One day all rats of this group received the extract and another day they drank water. Statistical analysis was performed using statistical analysis applications of Microsoft® Excel.
Results. It was shown an increase of IL-1β content on 6% in rats that were on a high-calorie diet compared with control animals. In "HCD+Ex" group this cytokine increased on 2% in blood serum of rats. Also shown that obesity development in "HCD" group led to IL-12 content increase on 12% compared with "Control" group, but in "HCD+Ex" group observed the decreasing it on 3%. Consumption the P. vulgaris extract led to decrease value of IL-10 on 7% and on 10%. It was shown decreasing of IL-4 in blood serum of rats that were on high-calorie diet on 10%. And value of this cytokine decreased on 12 % in "HCD+Ex" group compared with control animals. Results showed change in the content of cytokines in both groups of animals. Also, the therapeutic effect of P. vulgaris extract on the obesity development that had been the result of high-calorie diet consumption was observed. Conclusions. Noted effects suggested that this extract may be used as functional ingredient in addition to regular therapy of obesity and its related complications.

References


Key words: cytokines, biomarkers, extract of P. vulgaris

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