ADVANCES OF SCIENCE

Proceedings of articles the international scientific conference
Czech Republic, Karlovy Vary -
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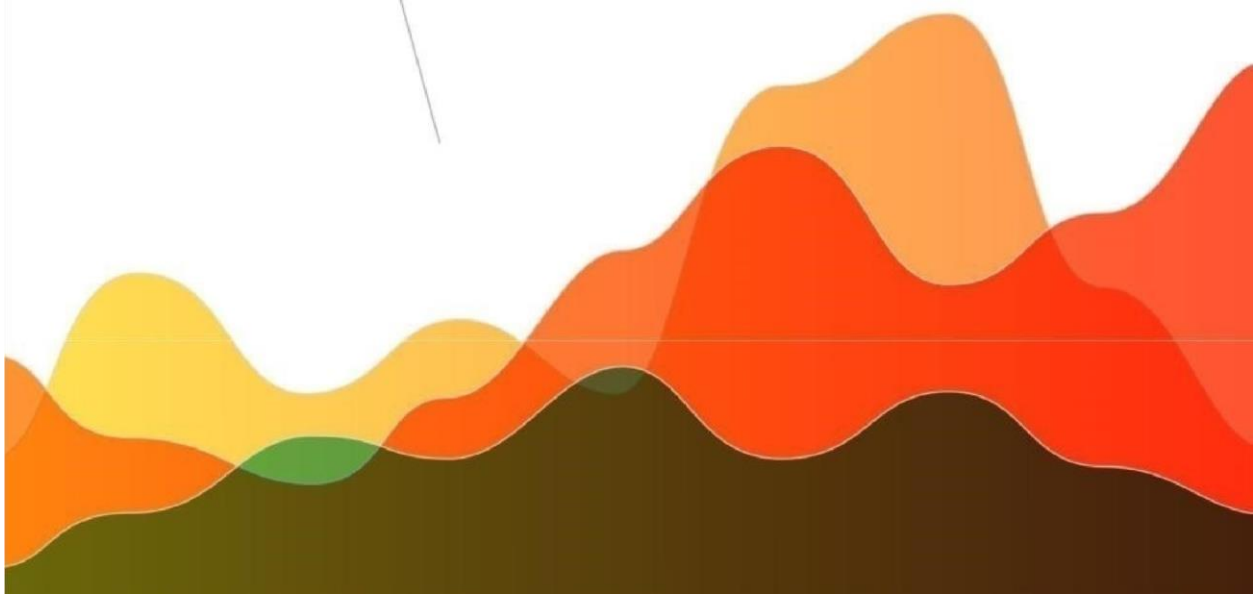

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ADIPOKINES AND INTERLEUKIN-17 ARE THE LINK OF REGULATORY MECHANISM IN KIDNEY FUNCTION DISORDER MODEL IN RATS

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Adipokines and interleukins (IL) are involved in regulation of renal function but their role in the mechanisms is not clear yet. If the effects of such adipokine as adiponectin in kidney disorders are better defined [1], the effects of visfatin and IL17 are not so well studied.

The aim of the study was to investigate the effects of adiponectin, visfatin and IL-17 in kidney disorder model in rats.

Methods In this study two groups of 9-month-old female rats (control (20 intact animals) and experimental (20 animals)) weighing 210 ± 30 g were used. Renal excretory function impairment was created by a single intramuscular 50% glycerol injection in dose of 1.0 ml / 100 g weight of the animal. Experiment was carried out in 12 weeks after glycerol injection. Blood samples were collected through heart puncture of the anesthetized with chloroform rats. Serum adiponectin, visfatin and interleukin-17 (IL-17) levels were measured using ELISA. The statistical analyses were performed by Statistica 6.0 programmes. The significance was considered at $p<0.05$.

Results Increase of all the cytokines has been revealed in kidney function disorder model ($p<0.05$). These data correlate with literature [1-4].

Analysis of their interrelations was carried out and in the intact rats no correlation has been found between adiponectin and visfatin levels, weak positive correlation between adiponectin and IL-17 and weak negative correlation between visfatin and IL-17 was shown. This may demonstrate the same direction of adiponectin and IL-17 regulating action and opposite one of visfatin and IL-17 in the intact animals.

In kidney function disorder model changing of interrelations of these cytokines has been revealed. It was high negative correlation (r=-0.79) of adiponectin with visfatin levels, medium strength negative correlation (r=-0.43) of adiponectin with IL-17 levels and high positive correlation (r=0.84) of visfatin with IL-17 levels, demonstrating unidirectional regulatory effects of visfatin and IL-17 and opposite adiponectin with visfatin and adiponectin with IL-17 directions of their effects. This may give evidence of these three cytokines compensatory effects in impaired functional regulatory cytokine network in rats with kidney function disorder.

Conclusions This work represents evidence of cooperative effects of adiponectin, visfatin and IL-17 on renal function which can be identified as a new link in its regulatory mechanisms.

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