Evaluation of innate immune response induced by chronic and acute leptin administration

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Introduction: Leptin is a hormone/cytokine secreted for adipocytes with important activity in the Central Nervous System (CNS), controlling food intake and energy expenditure. In the peripheral system, it plays a significant function on the immune system through the cellular-response activation and induction of proinflammatory cytokine production. Although broad studies demonstrate leptin capacity to induce central receptor resistance, few studies approach how chronic increase in leptin levels would affect immune cells. We conjecture if leptin is capable to induce peripheral resistance, such as hyporesponsive leukocytes over acute leptin stimuli, when leptin levels are continuously increased. Objectives: To characterize the effects of in vivo chronic treatment prior to acute stimulation by leptin on cells recruitment to peritoneal cavity. Materials and Methods: C57BL/6 male mice received intraperitoneal injections of 0.1 to 0.5 mg/kg leptin for 4 weeks. The weight and food intake of the animals were accompanied during this period. At the end this period, mice received as acute stimuli 1 mg/kg leptin intraperitoneal administration. Sterile saline solution was administered as control. After 24 hours, it was performed peritoneal washing in the animals for verification of macrophage activation and cell migration to peritoneal cavity. Results: Chronic administration of leptin apparently is able to promote alterations in the cell profile at peritoneal cavity, as demonstrated by reduced neutrophils population when compared to the group with only acute stimuli of leptin, while the chronic leptin administration show eosinophils increased after the recurring stimuli. Conclusions: These data suggest that the chronic leptin administration changes in one important way the response to inflammatory stimuli, this fact might be perceived by alterations in the cell migration profile to peritoneal cavity.

Key Words: Leptin, Peripheral Resistance, Cell Migration

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