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ABSTRACTS BOOK

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STUDY OF SREBP1 AND SERBP2 IN PERIPHERAL BLOOD MONONUCLEAR CELLS FRON HYPERCHOLESTEROLEMIC RABBITS

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Peripheral blood mononuclear cells are a possible biomarker that could reveal molecular alterations before the development of the disease. Therefore, the objective of the present investigation is to study molecular and genetic changes that indicate metabolic modifications even with normal biochemical values. SERBP1 and SERBP2 are proteins involved in lipid metabolic. These molecules can be expressed in peripheral blood mononuclear cells. This allows study tissue changes without resorting to biopsies. In this study, one control group of New Zealand rabbits was fed with a balanced feed (C) and another group received the same balanced feed supplemented with 17% fat (F). These animals did not receive fructose overload, maintaining constant concentrations of carbohydrates and protein in both groups. In biochemical tests from both groups were observed similar levels of glucose (C group: 140.7 + 28.4 mg/dl / F group: 118.3 +12.0 mg/dl) and triglyceride (C group: 144.1 +15.5 mg/dl / F group: 135.6 +8.3 mg/dl), while F group showed increased levels of cholesterol (42.8 +21.6mg/dl) compared with C group (27.1 +4.5 mg/dl). However, there is variability in the cholesterol values because some animals of the F group do not experience significant increment despite the intake of fat. This interesting finding leads to the hypothesis that changes in lipid metabolism can be examined by the expression of different genes early. As preliminary results, we observed by immunohistochemistry the presence nuclear of SREBP1 and SREBP2 in lymphocytes of the F group, while in C group was not observed immunoreaction or cytoplasmic signal. This result is indicating an activation of the lipid metabolism before being able to observe changes at a biochemical level.

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EFFECTS OF HYPOTHYROIDISM ON THE VISCERAL ADIPOSE TISSUE OF RATS

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Abnormal thyroid stimulating hormone (TSH) and thyroid hormones levels are frequently associated with changes in body weight (BW) and in the functioning of adipose tissue. Our aim was to characterize the influence of Hypothyroidism (HypoT) on the rat visceral adipose tissue (VAT). Sprague Dawley female rats (55 days old) were divided into two groups: hypothyroid rats (HypoT, 0.01% 6-N-propyl-2-thiouracil in drinking water, n=10) and untreated control euthyroid rats (EUT, n=10). BW and body length were assessed. On day 70 of the experiment, animals were decapitated. Trunk blood was collected for measurement of serum hormone concentrations. The VAT was removed for histological, western blot and real-time PCR analysis. We evaluated the morphology and differentiation of adipocytes, and the expression of adipokines and their receptors in the VAT. HypoT showed decreased BW and body length. Serum growth hormone, estradiol, and progesterone levels were significantly lower in HypoT rats. The percentage of body fat, the amount of lipids and size of adipocytes were similar to EUT. Nevertheless, leptin and adiponectin levels were altered by HypoT. Finally, the expression of Perilipin A1 and HSL, both indirect biomarkers of adipocyte maturity, and UCP1 and PRDM16, both biomarkers of browning adipocytes, were significantly lower in HypoT. These findings suggested that adipocytes showed a less differentiated state; despite the fact that the expression of PPARγ, a master regulator of adipocyte differentiation, was increased in the VAT of rats with HypoT. In addition, the increase of MCT1 expression indicated that the metabolic demands on the adipocyte tissue were altered in HypoT. We concluded that hypothyroidism in rats induced a decrease in body size without changing the percentage and the morphology of the VAT, but interfering with white adipocytes differentiation.