Lepota A.

ROLE OF LEPTIN RESISTANCE IN HIGHT FAT DIET OBESITY

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According to the WHO definition, "obesity" is a complex medical condition, characterized by excessive fat accumulation, due to increased intake of energy-rich foods and decreased physical activity. By 2030, estimates predict that 57.8% (3.3 billion people) of the world's adult population will have a BMI of 25 kg/m2 or higher. Leptin resistance is involved in the pathogenesis of diet-induced obesity. High fat intake triggers central leptin resistance by blocking leptin signaling by chronic leptin receptor overstimulation or hypothalamic proinflammatory responses due to elevated levels of saturated fatty acids.

The aim of this research is to investigate the role of leptin in regulating metabolism, appetite and obesity; research on ways to regulate eating behavior towards leptin by neuronal activation in the CNS and possible signaling disorders, which subsequently leads to metabolic disorders.

In obesity, circulating levels of peripheral leptin increase, which is associated with decreased leptin transport on hematoencephalic barrier by inducing lipotoxicity and endoplasmic reticulum (ER) stress, which is closely linked to saturated fatty acid levels. Increased accumulation of saturated fatty acids improved expression of interleukin (IL) -6, tumor necrosis factor (TNF) -alpha, kappa B kinase-beta inhibitor (IKK-beta) and IKK-epsilon in the hypothalamus which may lead to resistance to leptin and insulin in the CNS through the expression of SOCS3, a well-known inhibitor of insulin and leptin signaling. In this sense, hypothalamic inflammation induced by saturated fatty acids may be an initiating factor of obesity.

Obesity can cause an increased deposition of fatty acids in the myocardium that causes dysfunction of the left ventricle,b alters the renin-angiotensin system causing increased salt retention and increased blood pressure. These risk factors are b largely due to a hight fat diet. Understanding the biochemical mechanisms of regulation of enzymes and receptors involved in b the regulation of adiposity would significantly contribute to reducing the incidence of dyslipidemia and reducing the risk of b heart disease and associated mortality.