

Effects of photobiomodulation on ovarian function in an experimental model of polycystic ovary syndrome in rats

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Polycystic Ovary Syndrome (POS) is a complex gynecological condition often associated with infertility and various metabolic risks, including the development of type II diabetes mellitus, dyslipidemia, cardiovascular disease, hypertension and metabolic syndrome. Several theories may explain the pathophysiological mechanisms involved in POS, which include: neuroendocrine defects, androgen synthesis/metabolism and/or action, cortisol metabolism, insulin action and/or secretion, and defects in lipid metabolism, as well as chronic subclinical inflammatory processes. Conventional treatment involves drugs including metformin, orlistat and statins, but the long-term benefits are not completely clear; in addition they induce some side effects. In this sense, photobiomodulation (PBM) emerges as a promising therapy since it exerts important anti-inflammatory effects. Thus, the aim of this study will be to evaluate the effects of photobiomodulation on ovarian function in an experimental model of polycystic ovary syndrome. For this purpose, female Wistar rats will be used, submitted or not to POS induction by intramuscular administration of a single dose of estradiol valerate (2mg/0,2 ml) and treated or not with PBM (810 nm 100mW, 150s) in two points: right side and left side of the ventral surface. We will investigate clinical parameters such as: body weight, ovarian weight, quantification and gene expression of cytokines in ovarian homogenate, analysis of sex hormones, glucose and cholesterol. Considering that POS is a multifactorial disease that can induce infertility, the search for new treatments without side effects and at a lower cost is relevant.