TRANSCRIPTIONAL EXPRESSION OF KISSPEPTIN, NEUROKININ B, DYNORPHIN (KNDY), SEX STEROIDS AND THEIR RECEPTORS IN THE HYPOTHALAMUS OF POLYCYSTIC OVARY SYNDROME RAT MODELS INDUCED BY ESTRADIOL OR TESTOSTERONE.

R. Marcondes, K. Carvalho, D. Duarte, G. Giannocco, V. Amaral, E. Baracat, G. Maciel

Introduction: We investigated expression of genes related to physiology of sex steroids and important neuroendocrine peptides in hypothalamus of the polycystic ovary syndrome (PCOS) rat models. Objective: To evaluate the expression of Kiss1, Kiss1r, Tac3, Tac3r, Esr1, Esr2, Ar, Pdyn and Oprk1 in the hypothalamus of PCOS rat models induced by estradiol or testosterone. Material and methods: Thirty female rats aged between 0-3 d of age were sorted in three groups according with sc injection of the following compounds: testosterone (1.25 mg) (TG; n=10), estradiol (0.5 mg) (EG; n=10) and vehicle, as control (CG; n=10). At 90 d, the rats were euthanized and the hypothalamuses were removed to evaluation of transcriptional expression of Kiss1, Kiss1r, Tac3, Tac3r, Esr1, Esr2, Ar, Pdyn and Oprk1 by qRT-PCR. CG served as reference sample and its value of expression is always 1.000. Statistical analysis was performed using ANOVA. Results: TG animals had increased Ar expression (Relative quantification [RQ]=1.140±0.185) in comparison to CG (P<0.04). Kiss1 expression was lower in EG (RQ=0.399±0.128) and TG (RQ=0.705±0.242) compared to CG (P<0.0001). Conversely, Kiss1r was overexpressed in EG (RQ=1.208±0.090) compared to CG (P<0.01). In EG and TG rats Esr1 gene was downregulated compared to CG, with RQ=0.761±0.108 and RQ=0.849±0.201, respectively (P<0.01). Esr2 was more expressed in TG (RQ=1.246±0.313) than CG (P<0.02). In EG, Tac3 was downregulated (RQ=0.783±0.156 and Oprk1 was upregulated (RQ=1.173±0.118) compared to CG (P<0.01 and P<0.05, respectively). Conclusion: PCOS rat models exhibited altered expression of genes related to neuroendocrinology, this alteration might account for chronic anovulation in those rats and possibly in human PCOS.