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TITLE

THE ROLE OF MELATONIN IN THE PATHOGENESIS OF POLYCYSTIC OVARY SYNDROME AND ITS RELATIONSHIP WITH ANOVULATION

AUTHOR/S

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ABSTRACT

Context. Melatonin regulates the "sleep-wake" cycle and reproductive function. It is one of the main components of the antioxidant system. Oxidative stress is ubiquitous in patients with PCOS. Disrupted balance of the antioxidant system may worsen the normal growth and maturation of follicles. Women with PCOS have high content of lipid peroxidation products, causing the damage of the oocytes.

Objective. To determine the level of melatonin in various biological fluids in women with PCOS.

Methods. Examination of melatonin level in blood sampling at 08.00 and in follicular fluid by chromatography-mass spectrometry; determining the circadian rhythm of melatonin in saliva every 4 hour and of 6-sulfatoxymelatonin in the daily urine.

Patient. 60 patients with PCOS aged 17 to 35 years. PCOS was diagnosed on the basis of ESHRE/ASR (2007) criteria. The control group: 60 healthy women without menstrual disorders.

Intervention. Sampling a follicular fluid during laparoscopic ovarian drilling for the treatment of infertility in women with PCOS. Control group: women who underwent a diagnostic laparoscopy for the tubal factor of infertility.

Result. Patients with PCOS had significantly higher levels of 6-sulfatoximelatonin in urine, nocturnal melatonin in saliva (03.00) and melatonin in the blood ($p < 0.05$) compared with the control group. Melatonin level in a follicular fluid was lower in women with PCOS compared with the control group. There was a significant correlation of melatonin level in saliva at 03.00 and 6-sulfatoximelatonin in daily urine ($p < 0.05$).

Conclusions. Reduced melatonin concentration in a follicular fluid in women with PCOS disrupts the maturation of follicles and leads to anovulation, while a down regulation increases melatonin level in the blood. Correlation of melatonin levels in saliva and urine indicates the systemic effect of the hormone in women with PCOS.

INSTITUTE

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