

Evening not morning plasma cortisol level is higher in women with polycystic ovary syndrome.

Authors: Marta Kiałka MD¹, Tomasz Milewicz PhD¹, Agnieszka Ociepka MD²; Magdalena Krzyckowska-Sendrakowska MD¹, Ewa Stochmal MD²

Hospital: ¹Department of Gynecological Endocrinology, Jagiellonian University, Medical College, Cracow, Poland
²Department of Endocrinology, Jagiellonian University, Medical College, Cracow, Poland



OBJECTIVES

The aim of our study was to assess the morning and evening cortisol plasma levels in women with polycystic ovary syndrome (PCOS).

METHODS

95 patients gave their informed consent to participate in the study and were divided into 2 groups. Group A consisted of 40 PCOS patients and group B consisted of 55 women without features of PCOS. Between day 5 and 8 of the menstrual cycle, morning (7 am), fasting blood samples were taken for the assessment of luteinizing hormone (LH), follicle stimulating hormone (FSH), estradiol, cortisol, prolactin, thyrotropin (TSH), testosterone and dehydroepiandrosterone (DHEAS). Evening (5 pm) blood samples were also taken for the evaluation of plasma cortisol level

Table 1. Clinical characteristics of PCOS patients (group A) and controls (group B).

Parameter	Group A n=40	Group B n=55	P
Age (years)	27.3±3.6	29.8±6.8	NS
Range	(20-32)	(15-36)	
BMI (kg/m ²)	24.1±6.5	25.7±7.2	NS
Range	(17.8-42.3)	(16.5-44.8)	

Table 2. Hormonal characteristics of PCOS patients (group A) and controls (group B).

parameter	Group A n=40	Group B n=55	P
LH (IU/l)	10.7±6.8	6.6±4.5	<0.02
Range	(4.5-29.0)	(2.2-19)	
FSH (IU/l)	6.2±1.7	5.7±2.0	NS
Range	(1.6-8.8)	(2-9.9)	
Estradiol (ng/l)	76.5±14.0	86.9±103.7	NS
Range	(37.9-99.0)	30.8-537.0)	
Prolactin (ug/l)	13.3±6.4	14.2±11.3	NS
Range	(4.9-28.1)	(2.4-28.0)	
Testosterone (nmol/l)	3.8±0.6	1.6±0.6	<0.001
Range	(3.1-5.5)	(0.3-2.7)	
DHEAS (nmol/l)	427.7±162.9	236.6±97.8	<0.001
range	(148.1-647.8)	(95-436.0)	
SHBG (ng/ml)	65.4±36.6	63.8±36.4	NS
Range	(14.6-138.3)	(14.5-132.8)	
TSH (uIU/ml)	1.6±0.7	2.1±1.2	NS
Range	(0.5-3.0)	(1.0-3.9)	

Table 3. Plasma cortisol levels in PCOS patients (group A) and in controls (group B).

Parameter	Group A n=40	Group B n=55	P
Cortisol 7 am (ug/dl)	14.6±9.8	14.2±10.0	NS
range	(2.5-28.1)	(2.0-25.3)	
Cortisol 5 pm (ug/dl)	11.8±4.1	4.7±1.3	<0.02
Range	(2.6-7.7)	(2.9-7.7)	

data is presented as mean ± standard deviation (SD) and minimal and maximal value.

RESULTS

There were no differences in mean age, body mass index (BMI), FSH, SHBG, PRL, estradiol and TSH levels between group A and group B. Mean plasma LH level was higher in group A compared to group B (10.7±6.8 IU/l vs 6.6±4.5 IU/l, p<0.02). Mean plasma testosterone and DHEAS levels were also higher in PCOS patients (3.8±0.6 nmol/l vs 1.63±0.6 nmol/l; 427.7±162.9 vs 236.6±97.8 resp, p<0.001). Mean evening plasma cortisol level was higher in PCOS patients (11.8±4.1 ug/dl vs 7.4±5.0 ug/dl, p <0.02). Mean morning plasma cortisol levels did not differ between groups.

CONCLUSIONS

PCOS women showed the increased plasma cortisol level with impacted diurnal secretion rate.

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