Plasma β-endorphins level is higher in lean patients with polycystic ovary syndrome (PCOS) than in lean women without this disorder.

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OBJECTIVES

Polycystic ovary syndrome (PCOS) is one of the most common causes of anovulatory and infertility. According to the widespread data it affects 3-10% of women in the procreative age [1]. Although many research have been done, it is still unclear which of mechanisms are responsible for the development of PCOS. The most up-to-date scientific trial indicates that the evolution of PCOS is related to the activity of the endogenous opioid system but precise mechanism is not completely understood [2,3].
The aim of this study was to determine β-endorphin levels in lean patients with PCOS compared to lean women without PCOS. Additionally we investigated the association between opioid concentration and other parameters in women with a BMI within a normal range.

METHODS

26 lean women (BMI=21,34±1,83) were enrolled to the study and divided into two groups: group A consisted of 12 PCOS patients with free androgen index (FAI) >5 and group B consisted of 14 women without features of PCOS and with FAI <5. The diagnosis of PCOS among examined patients was based on the Androgen Excess Society criteria [4]. Standard diagnostic hormone profile was made in all the patients and the level of β-endorphins was measured. The following hormones were measured: FT3, TSH, FT4, aTPO, aTG, LH, SHBG, estradiol, testosterone, cortisol, DHEAS, prolactin in metoclopramide test, insulin in OGGT test, vitamin D3, C-peptide, CA125. BMI were assesed. The clinical characteristics of women with PCOS and controls are set in Table 1.

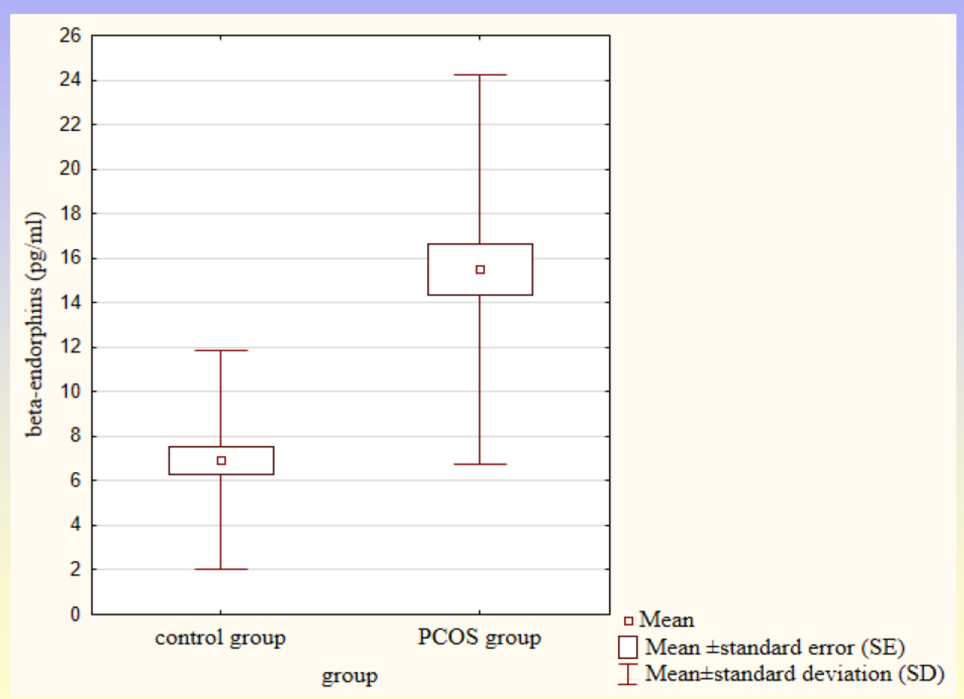
Parameter	PCOS group n=12 mean±SD	Control group n=14 mean±SD	p
Age (years)	25±2.59	26.6±3.78	0.1925
Weight (kg)	62.7±3.75	59.9±6.3	0.1390
Height (cm)	168.2±3.1	165.6±5.39	0.1087
BMI (kg/m²)	22.2±1.11	21.8±1.9	0.5493
FT3 (pmol/l)	4.8±0.59	4.7±0.61	0.6363
TSH (IU/ml)	1.8±0.5	2±0.89	0.4381
FT4 (pmol/l)	15.2±1.49	14.3±2.54	0.2306
Prolactin (uIU/ml)	308.5±216	293.3±255.03	0.8593
Testosteron (nmol/l)	2.3±0.33	1±0.39	<0.0001
SHBG (nmol/l)	36.4±7.98	45.7±9.56	<0.007
FAI	6.6±1.25	2.4±1.25	<0.0001

Table 1. Clinical characteristics of women with PCOS and controls.

RESULTS

Mean β-endorphin levels was significantly higher in group with FAI>5 (15,5 pg/ml ±4,37 versus 6,9 pg/ml ± 2,47; t-student test; p,0.0001). Spearman test indicated also a positive correlation between β-endorphin level and weight (r= 0,682; p< 0.05) and β-endorphin level and C-peptide level (r= 0,778; p,0,05) in FAI<5 group. Absence of the significant correlation was observed in FAI > 5 group. It might be a consequence of limited number of this group

Figure 1. Beta endorphin levels in lean women with PCOS and controls.



data is presented as mean and standard deviation

CONCLUSIONS

Our study showed that the level of β-endorphins was statistically significant higher in patients with PCOS. Further experimental research is required to evaluate the correlation between β-endorphins and PCOS evolution.

References

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