Androgen distribution in different phenotypes of women with polycystic ovary syndrome (PCOS)

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Introduction
Polycystic ovary syndrome (PCOS) phenotypes A and B are considered to be more hyperandrogenic in comparison to phenotypes C and D that are considered to be mostly reproductive. The aim of this study was to analyze distribution of androgens in different phenotypes in our PCOS population.

Methods
We evaluated 365 PCOS women (PCOS: 25.05±6.24 kg/m²; 25.48±5.21 years) diagnosed using ESHRE/ASRM criteria and 125 healthy women (Controls: 25.41±5.16 kg/m²; 30.35±5.62 years). PCOS group was divided into 4 phenotypes: A (anovulation (ANOV), hyperandrogenism (HA), polycystic ovary morphology (PCOM)), B (ANOV,HA), C (HA,PCOM) and D (ANOV,PCOM). In follicular phase of menstrual cycle total testosterone (TT), SHBG, androstenedione and DHEAS and free androgen index (FAI) were determined in all subjects. All analyses were BMI and age adjusted.

Results
In comparison to Controls, phenotypes A, B and C had higher levels of TT, FAI, and androstenedione; DHEAS was higher in A and C, while SHBG lower in all phenotypes. Only 4% of phenotypes A, B and C had elevated only TT, which was significantly different in comparison to both D and Controls. Prevalence of elevated only DHEAS or androstenedione was the same in all phenotypes. The most common was presence of concomitantly high TT and androstenedione: A 23%, B 24%, C 15% while 0% in both D and Controls (p<0.05). A and C had higher prevalence of concomitantly high both TT and DHEAS (13% and 10%, respectively) in comparison to Controls (0%) and phenotype D (0%), (p<0.05). The prevalence of concomitantly elevated both androstenedione and DHEAS was the same in all groups.

Conclusion
In our PCOS population the most common hyperandrogenemia pattern is concomitant elevation of both TT and androstenedione. Low SHBG is a common feature in all PCOS phenotypes including phenotype D.