

## **P41. The interrelationship between anthropometric biologic markers of body fat distribution and steroid hormone biosynthesis in polycystic ovary syndrome**

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**Background:** Hyperandrogenic PCOS may present an increased abdominal visceral adiposity and the clinically used anthropometric parameters might be associated with androgen biosynthesis. The knowledge regarding the interrelationship between adipose tissue and steroidogenesis is limited.

**Objective:** To examine the impact of different anthropometric measurements of fat distribution amount on steroidogenic enzyme activity and sex-steroid concentrations in polycystic ovary syndrome.

**Methods:** A cross-sectional study that included 268 patients with polycystic ovary syndrome and 106 normal cycling controls. Anthropometric, biochemical, and hormone parameters were verified. Steroidogenic enzyme activities were calculated using product-to-precursor ratios.

**Results:** In hyperandrogenemic patients, BMI, and WHtR positively correlated with total testosterone, while FM and LBM/FM negatively correlated with this androgen. WHR, WHtR, CI, VAI, and LAP negatively correlated with 17-hydroxypregnenolone in hyperandrogen PCOS. Androstenedione, 17-OHP4 and DHEA correlated with a few anthropometric parameters. 17,20 lyase activity correlated with several anthropometric measurements in normo-and hyperandrogenemic PCOS patients, while 17-hydroxylase correlated only with WHR in hyperandrogenemic PCOS.

**Conclusion:** Anthropometric parameters correlate with the concentrations of several androgens in PCOS patients, most of them in patients with biochemical hyperandrogenism. 17,20 lyase activity also correlated with anthropometric parameters. The molecular mechanisms involved in these associations are largely unclear, and additional experimental and clinical studies are needed to augment our knowledge.

**Keywords:** sex-steroids, androgens, hyperandrogenism, steroidogenesis, polycystic ovary syndrome

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