Context. Rotterdam criteria identified four possible polycystic ovary syndrome (PCOS) phenotypes, based on the combination of oligo- or anovulation (ANOV), hyperandrogenism (HA) and polycystic ovaries at the ultrasound (PCO): phenotype 1 (ANOV+HA+PCO), phenotype 2 (ANOV+HA), phenotype 3 (HA+PCO), phenotype 4 (ANOV+PCO). The respective endocrine, reproductive and metabolic profiles are the subject of ongoing controversy.

Objective. To compare AMH levels among the four PCOS phenotypes in relation to clinical, endocrine and metabolic features.

Setting. Academic research environment.

Patients or Other Participants. 117 PCOS women (mean BMI 25.89 ± 6.20, age range 18-37 years) and 24 age and BMI matched controls.

Main Outcome Measure(s). Evaluation of BMI, WHR, hirsutism score, ultrasound ovarian characteristics, hormonal parameters including AMH, oral glucose tolerance test and euglycaemic-hyperinsulinemic clamp.

Results

The relative frequency of the phenotypes 1-4 was: 62.4, 8.6, 11.1 and 17.9 % of patients, respectively. BMI and insulin-resistance resulted comparable between groups. Phenotype 1 showed the highest LH, androgens levels, ovarian volume and AMH serum concentrations (9.27 ± 8.17 ng/ml, P<0.05 vs phenotype 2 and controls). Phenotype 2 women were hirsute, showed an intermediate FAI mean value and low ovarian volume and AMH  (4.05 ± 4.12 ng/ml). Phenotype 3 presented with an intermediate state of clinical and biochemical hiperandrogenism, and AMH serum level (5.87 ± 4.35 ng/ml) not significantly different from other groups. Phenotype 4 clinical and endocrine characteristics resembled those of controls, except for ovarian volume and AMH levels (7.62 ± 3.85 ng/ml), which were significantly higher than those from control group (p<0.05)

Conclusions: AMH measurement may play a promising role in the characterization of PCOS phenotypes.