Objective: To characterize the difference in circulating anti-Mullerian hormone (AMH) levels between the main polycystic ovary syndrome (PCOS) phenotypic groups and evaluate the role of AMH in predicting the severity of PCOS.

Study design: Cross-sectional, retrospective study. The three main diagnostic criteria of PCOS are polycystic ovarian morphology (PCOM), oligo-anovulation (OA), and hyperandrogenism (HA). A total of 251 women were divided into four groups based on the main features of PCOS, as follows: Group 1 (PCOM+/OA+/HA+), Group 2 (PCOM+/OA+/HA-), Group 3 (PCOM+/OA-/HA+), and Group 4 (PCOM-/OA+/HA+). AMH and other hormone levels were measured in serum. The main outcome was serum AMH concentrations in the main phenotypes of PCOS.

Result(s): The mean serum AMH levels were 9.50±6.1 ng/mL in Group 1; 8.02±6.2 ng/mL in Group 2; 6.12±3.6 ng/mL in Group 3; and 3.06±2.4 ng/mL in Group 4. Circulating AMH levels in Group 1 (PCOM+/OA+/HA+) were three times higher than those in Group 4 (PCOM-/OA+/HA+). Serum AMH levels were also evaluated as quartiles, and a Pearson’s correlation analysis showed statistically significant correlations between AMH and the four groups of PCOS-related phenotypes (r = -0.408, P < 0.01) (Table 2). As the levels increased, the prevalence of the PCOM+/OA+/HA+ group increased from 11.6% in the 25th quartile-AMH group to 37.9% in the 75th quartile-AMH group.

Conclusions: The highest AMH levels were found in cases where all three main diagnostic criteria existed. AMH levels correlate best with PCOM. We assume that AMH levels are highly correlated with follicle number. In addition, oligo-anovulation contributes to increased AMH levels. Hyperandrogenism criteria were found to have less influence on AMH levels. AMH levels seem to have a diagnostic role in determining the severity of PCOS.