INTRODUCTION

An elevated anti-Müllerian hormone (AMH) level might serve as a noninvasive screening or diagnostic test for polycystic ovarian syndrome (PCOS) in adolescents, although no well-defined cut-offs have been described. We explored whether the AMH levels of adolescents with PCOS, those at risk of developing PCOS, and those who exhibited isolated oligomenorrhea (OM), differed from those of adolescents with normal menstrual cycles, and we identified an AMH level that was potentially diagnostic of PCOS.

METHODS AND RESULTS

A diagnosis of PCOS was based on the 2012 Amsterdam (ESHRE/ASRM) criteria:
1) Clinical and biochemical hyperandrogenism,
2) OM or amenorrhea persisting for 2 years after menarche,
3) The presence of one ovary ≤10 cm³ in volume and/or the presence of ≥12 follicles 2–9 mm in diameter in each ovary. Hyperandrogenism was diagnosed if hirsutism was evident (Ferriman–Gallwey score ≥8) and/or the serum testosterone level was elevated. Such an elevation was defined as a total testosterone level >51 ng/dL. OM was defined as an average menstrual cycle length of 45–90 d; the normal menstrual interval is 21–45 d in young females.

The PCOS group consisted of individuals meeting all three diagnostic criteria; those in the “at-risk-of-PCOS” group met two of the criteria. The OM group consisted of those with isolated OM who did not satisfy the other PCOS diagnostic criteria.

Table 1. Baseline demographic, clinical characteristics of all groups

Table 2. Laboratory findings of all groups

Table 3. Ovarian size and number of follicles in four groups

An AMH cut-off of 7.25 ng/mL can assist in PCOS diagnosis in adolescents. However, before this criterion is used routinely, larger populations should be studied. OM subjects should be monitored for the development of PCOS.

In the PCOS group only, significant positive correlations were evident between LH level and t-testosterone (r=0.697), f-testosterone (r=0.838), and 1,4-androstenedione (r=0.770) levels (p<0.001). Similarly, a significant negative correlation was evident between AMH level and the BMI SD in only the PCOS group (r=-0.648, p<0.001). No significant correlation was apparent between AMH level and ovarian volume or between AMH level and follicle number in any group.

DISCUSSION

An AMH cut-off of 7.25 ng/mL can assist in PCOS diagnosis in adolescents. However, before this criterion is used routinely, larger populations should be studied. OM subjects should be monitored for the development of PCOS.