Is There a Relationship Between Age at Menarche and the Development of PCOS?

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BACKGROUND AND AIMS

Epidemiological studies[1-3] have reported that polycystic ovary syndrome (PCOS) is associated with an early adrenarche, early menarche, and rapid pubertal progression. The determinants of early menarche are childhood obesity, genetic influences, mother's age at menarche, overall health, endocrine disruptors, social environment (e.g., stress), and early adrenarche.

This study was planned to identify whether age at menarche in a random sample of patients attending a clinic had a relationship with the development of PCOS in adult life. If a relationship was identified, it would help to screen adolescents with early menarche for the development of PCOS later, as this disease has medical and metabolic implications throughout a woman's life. There are many overlaps in the diagnosis of PCOS in adolescence, as the symptoms and signs overlap with normal puberty. This can lead to under-evaluation and under-treatment until reproduction is desired. If an association can be identified between age at first menstrual bleed and the development of PCOS, it will have multiple health benefits.

MATERIALS AND METHODS

It was a cross-sectional study conducted from December 2022–January 2023 at Aditi Hospital, Trichy, India, in 200 women attending the out-patient department. Sampling was a convenience sampling in women attending the fertility and adolescent clinic. A questionnaire was provided with queries on demography, marital status, age at menarche, menstrual history and patterns, and history of oral contraceptives usage. The women were evaluated for weight, height, BMI, waist and hip circumference, hirsutism, acne, and an ultrasound was done for diagnosing polycystic ovarian morphology. The association between the age at menarche and the development of PCOS was studied using the statistical analytical method of χ^2 for linear trends in proportions.

RESULTS

PCOS prevalence was highest in the 15–25-year age group (39.2%), followed by 25–35 years (38.0%) and 35–45 years (37.5%). In the study, age at menarche did not correlate with the development of PCOS. The p value was 0.14642 and the linear trend had no significance. The correlation of BMI with the development of PCOS was studied. The odds ratio was 3.3 and 95% CI was 1.765–6.2879. The p value was 0.0001 and was statistically significant. A higher BMI corelated with an increasing risk of developing PCOS in the study. Many studies on early menarche and the development of PCOS have given conflicting results over the years. Further research is needed to identify a correlation.

CONCLUSION

This study aimed to evaluate the relationship between age at menarche and the development of PCOS. No association was identified between age at menarche and PCOS risk. However, a clear correlation was observed between higher BMI and an increased likelihood of developing PCOS. These findings highlight the potential importance of early lifestyle interventions, suggesting that improvements in diet and physical activity at younger ages may help reduce the risk of PCOS onset.

References

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