



Effect of Age at Menarche on Obesity Epidemic

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Abstract

Menarche is a sign of puberty and the beginning of ovarian and other endocrine functions relating to reproduction. It is an important event demonstrating the end of childhood and the start of reproductive years for each woman that is preceded by the complex process of some hormonal changes in the puberty period. Moreover, it is an important clinical indicator of girls' physical, nutritional, and reproductive health. Early age at menarche, as the onset of menstrual periods in girls, has a substantial effect on their physical and sexual health and is related to the increased risks of unfavorable health outcomes. Further, menarche appears to be associated with several risk factors of emergent chronic disease. In recent decades, the age at menarche has shown a gradual decline from 16-17 years to less than 13 years. Evidence indicates that childhood obesity is related to earlier menarche. Finally, this change may be partially explained by the global epidemic of obesity.

Keywords: Menarche, Obesity, Epidemic

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Dear Editor,

Menarche is the beginning of the first menstruation and an indicator of puberty in women¹. However, early maturity is considered a significant public health issue because of its association with the early initiation of sexual activities.² Over the last century, the age at menarche has decreased worldwide³ and averages about 12 and 13 years.⁴ Furthermore, early age at menarche has been reported to be related to the future risk of unfavorable health results,⁵ including type 2 diabetes mellitus,⁶ metabolic syndrome,⁷ cardiovascular disease,⁸ breast, ovarian and endometrial cancer,⁹ spontaneous abortion, and obesity and mortality.¹⁰ Various factors affect the age at menarche, including genetic, geography, dietary habits, social, economic, physical exercise, and even climate.^{11,12} Overweight and increased body mass index (BMI) have been among significant changes in females and most probably as substantial agents that affect the age at menarche.¹³ A decrease in the age of menarche is suggested as one of the many factors resulting in the epidemic of obesity (Figure

1).¹⁴

A downward trend in pubertal timing results from the growth in the prevalence of overweight and obesity.¹⁵ Some researchers presume that some body fats are essential in female teenagers and minimum weight is needed to start menstruation.¹³ Additionally, increased adiposity may trigger estrogen production and result in the early initiation of menarche. Moreover, it has been reported that childhood BMI has a causal effect on the risk of the early age at menarche.⁹ Furthermore, earlier age at menarche is related to a higher risk of midlife obesity. One reason is related to the hypothesis that higher androgen concentrations leading to earlier age at menarche promote the development of obesity.¹⁶ The other research evaluated the effect of intrauterine growth and low birth weight on the earlier and rapid puberty developments.¹⁷

In conclusion, the earlier age of menarche is associated with obesity and increased BMI. In addition, it is possibly the reason for the global obesity epidemic. Thus, it is better to prevent obesity in girls as a modifiable factor before puberty.

Conflict of Interest Disclosures

None.

Ethical Approval

Not applicable.

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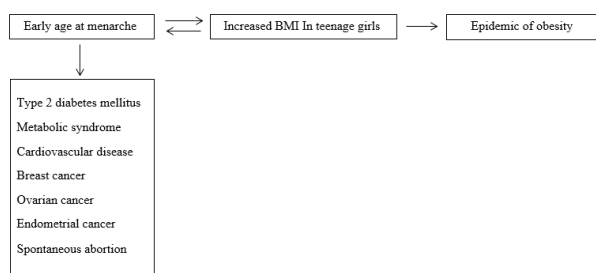


Figure 1. Conceptual Framework for Early Age at the Menarche and Epidemic of Obesity.

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