



■ Letter

Age-Group Related Cohort Effects on the Association between Age at Menarche and Metabolic Syndrome among Korean Premenopausal Women

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When we divided premenopausal women aged 20 to 55 years into two age groups (20–39 and 40–55 years) in our study, we intended to reduce the age-group related cohort effects on the association between age at menarche and metabolic syndrome (MetS).¹⁾ The younger group (aged 20–39 years) included women born in the late 1980s, when the age at menarche decreased most rapidly in Korea. Korea has undergone rapid socioeconomic changes from the 1960s to the 1990s, so younger and older groups can be considered as different birth cohorts with distinct historical and social backgrounds. Even after dividing into two groups based on the age at the time of the survey, the mean age of the early menarche group was still lower than that of the late menarche group in both groups (29.0 years with menarche at <12 years versus 32.2 years with menarche at ≥16 years in the women aged 20–39 years; 44.9 years with menarche at <12 years versus 49.0 years with menarche at ≥16 years in the women aged 20–39 years).

MetS prevalence is well-known to increase with age, especially in women as compared with men. Recently, a prospective study with 35 European cohorts showed that the increase in MetS prevalence from the 19- to 39-year age group to the 40- to 49-year age group was more than twofold (from 7.3% to 18.8% for the International Diabetes Federation criteria) in women and twofold (from 5.3% to 9.3%) in men.²⁾ Therefore, age should be adjusted in the relationship between age at menarche and MetS, and we do not agree with the authors of the Letter to the Editor³⁾ that our models that included age were overadjusted. The results presented in Appendix 1 of our

paper¹⁾ are similar to those of the recently published meta-analysis.⁴⁾ However, they ignored the age-cohort effect and made an error in applying the associations that could appear in some cohorts, for example, older women, to the whole population by analyzing various cohorts as one population.

Table 2 of our study¹⁾ shows the mean values of each MetS component in premenopausal women according to age at menarche and age at the time of survey. Younger women with early menarche had a larger mean waist circumference than those with menarche at 12–15 years or older (mean±standard error, 75.98±0.62, 73.08±0.31, and 72.48±1.01, respectively). The mean is a well-known measure of central tendency. Meanwhile, the prevalence of MetS or its individual components is the proportion of a population that displays the characteristic features of MetS at a given time. The younger women who had early and late menarche were more likely to have abdominal obesity (14.9%, 9.9%, and 13.7%, respectively). Likewise, in the older women aged 40–55 years, the mean waist circumference did not show significant differences among the three menarche groups, but the prevalence of abdominal obesity was highest in the early menarche group (24.0%, 15.3%, and 15.0%, respectively). We should understand the characteristics of the statistical indexes and appropriately interpret their meaning.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was re-

Received: May 15, 2019, Accepted: May 22, 2019

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