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CORRESPONDENCE

Sleep duration, obesity, and insulin resistance for children

Tomoyuki Kawada

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To the Editor,

I read with interest the paper by Börnhorst et al. [1]. They conducted a cross-sectional study and concluded the existence of an inverse relationship between sleep duration and body mass index (BMI). They used conventional risk factors, such as fat mass, and serum insulin, C-reactive protein (CrP), and cortisol as confounders for determining the association, and a linear regression analysis revealed significant influence (attenuation) of the serum insulin on the association. As there is a report showing the absence of any significant association between sleep duration and homeostatic model assessment of insulin resistance in obese adolescents [5], the cause–effect relationship should be evaluated by a longitudinal study.

I have two queries on their study. First, they used fat mass for adjustment while attempting to determine the association between sleep duration and BMI. In their Table 3, the explanation rate, expressed by the square value of R, is shown to have a higher value when fat mass was used for the regression analysis. This is because of the strong association between BMI and fat mass, and I speculate that no significant contribution of CrP or cortisol on the association between sleep duration and BMI can be derived in the presence of fat mass as a variable.

Second, they measured sleep duration by a computer-based 24-h recall method. I think that the use of this procedure was not a limitation. Although the authors described that sleep duration by actimetry yielded more valid measurements, there is no clear advantage of measuring sleep duration by actimetry. For example, Matthews et al. [4] reported that the average sleep duration during weekdays and weekends was 7.4 h as determined using a sleep diary and 6.4 h as determined by actimetry, and that the difference in the sleep duration between weekends and weekdays became larger when actimetry was used for the measurement. I have also reported previously that the results of actimetry should be handled with caution [2, 3].

Nevertheless, Börnhorst et al. have presented important information to speculate on the causality of the association between sleep duration and BMI. I recommend for conducting a follow-up study to explore the causality of the association.

Conflict of interest I have no conflicts of interest in this study.

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T. Kawada (✉)
Department of Hygiene and Public Health, Nippon Medical School, 1-1-5 Sendagi, Bunkyo-Ku,
Tokyo 113-8602, Japan
e-mail: kawada@nms.ac.jp