Influence factors on the development of obesity in 3-year-old children based on the Toyama study.

Abstract

Background. Obesity in childhood increases the risk of obesity in adulthood. Obesity in adulthood is a risk factor for chronic diseases such as hypertension and atherosclerosis. Therefore, it is important to eliminate factors influencing the development of obesity in children from the viewpoint of preventive medicine. The purpose of this study is to elucidate the relationship between obesity and lifestyle in 3-year-old children in a case-control study.

Methods. Subjects were selected from the Toyama study at health checkups for 3-year-old children which are done routinely by local governments in Japan on all children of that age. A special questionnaire consisting of items on lifestyle and environmental factors of
the children and past histories of parents was distributed to the Toyama study participants beforehand and was collected at the checkup. Matched-pair comparisons were performed between obese children whose body mass index was 18 or more (N=427) and control children (N=854) matched by sex and birth month. Multivariate stepwise conditional logistic regression analysis was also applied to assess the influence of confounding factors.

Results. The following six factors significantly influenced the development of obese 3-year-old children using the Mantel-Haenszel method: the mother's job, limited playtime outdoors (1 hour or less), snacking irregularity, an overweight father (body mass index ≥ 24), an overweight mother (body mass index ≥ 24), and overweight at birth (birth weight ≥ 3,500 g). An overweight mother or father, limited playtime outdoors, overweight at birth, and snacking irregularity were significantly related to obesity in 3-year-old children after adjusting for confounding factors by multivariate stepwise conditional logistic regression analysis.

Conclusions. We have suggested several factors influencing the development of obesity in 3-year-old Japanese children: parental overweight and overweight at birth as host factors, physical inactivity and snacking irregularity as behavioral factors, the mother's job as an environmental factor.

Keywords

obesity; children; risk factors; case-control study; Toyama study

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