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EDITORIAL COMMENTARY

Waist-to-Height Ratio—Time for a New Obesity Metric?

Anurag Bajpai[1,2]

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Childhood obesity has witnessed a dramatic increase over the last couple of decades [1]. The cardiovascular complications of obesity make their early diagnosis and management desirable. Obesity represents an increase in body fat and not just weight. DXA-derived adiposity assessment, the gold standard measure for adiposity, is cumbersome and not feasible on a community scale. This highlights the need for clinical adiposity surrogates to identify children and adolescents at risk for obesity complications. Body mass index (BMI) has been the most used clinical surrogate for identifying obesity. Lack of information about central obesity, the key determinant of cardiovascular complications, is an important limitation of BMI. Waist circumference, a marker of central obesity, is affected by age, gender, and ethnicity, making a single cutoff across age and gender difficult [2]. In this background, waist-to-height ratio (WtHR) has emerged as a surrogate of abdominal obesity that also considers body size, allowing the same cutoff across age and gender [3]. WtHR has a good correlation with body fat and predicts hypertension, a key complication of obesity [4–6]. There is a paucity of information about the determinants of WtHR and its predictive value for obesity complications in Indian children and adolescents [7].

In this issue of the journal, Kankaria et al. report a large multicentric study about the predictors of waist-to-height ratio and its relation to hypertension in over 12,000 children and adolescents [7]. They observed a U-shaped distribution of WtHR with a decline just before puberty, followed by a postpubertal rise. Weight, gender, socioeconomic status, age, and region were the key determinants of WtHR. The limited discriminating power of WtHR, BMI, and waist circumference in detecting hypertension (ROC area under the curve of 0.544, 0.57, and 0.517, respectively) was observed in the study. The authors make a case for preferring WtHR over BMI in identifying obesity with a cutoff above 0.5 across age and gender. They further suggest a relationship of hypertension with WHtR.

The study's findings make a case for greater use of WHtR in the community for screening central obesity. The lack of direct measurement of body fat, information about BMI standard deviation score (as against crude BMI), and an objective obesity complication endpoint limits its generalizability. The validity of WtHR as a marker of central obesity needs to be verified against fat measurement. The suggestion of using WtHR cutoff of 0.5 to define obesity is in deviation from the observation of age and gender variation in the parameter in the study. The assumption of a higher predictive value of WtHR for obesity complications is not backed by findings of the study given the absence of any objective cardiovascular complication endpoint. The low predictive value of WtHR in detecting hypertension (sensitivity of 53.5% and specificity of 52%) questions its role as a screening tool in screening obesity-related complications.

The study highlights the role of WtHR in childhood obesity screening in the community. Greater evidence of validation against direct fat measures and as predictors of cardiovascular complications is required before replacing the established and familiar tool, BMI.

Declarations

Conflict of Interest None.

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✉ Anurag Bajpai
dr_anuragbajpai@yahoo.com

1 Department of Pediatric Endocrinology, Regency Center for Diabetes Endocrinology & Research, Kanpur, Uttar Pradesh 208001, India

2 Fortis Memorial Research Institute, Gurgaon, Haryana, India

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