

The Association of Neck Circumference and Obesity: That Is Not All Yet

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Dear Editor,

We read with great interest the article entitled “Neck circumference as a useful marker for screening overweight and obesity in children and adolescents” published in the May issue of the Oman Medical Journal.¹ The article highlights the worrying issue of overweight and obesity among children and adolescents including those in developing countries.² The predisposing factors for such an unhealthy body figure include the consumption of readily available fast food, processed food, and fizzy drinks. Physical activity in childhood is largely getting replaced by handheld electronic games further accentuating the problem.

Obesity is closely related to many chronic illnesses, mainly metabolic diseases such as diabetes, hyperlipidemia, hypercholesterolemia, and metabolic syndromes. As clearly stated in the article, neck circumference has been identified to be an important screening tool for overweight and obesity.¹ Indirectly, neck circumference is also used for the assessment of cardiovascular risk factors in children.³

In otolaryngology practice, neck circumference is an important tool for predicting obstructive sleep apnea. In fact, neck circumference corrected for height is more useful as a predictor for obstructive sleep apnea than general obesity.⁴ Some researchers have gone further with this input estimating the neck circumference by using the easy sleep apnea predictor (ESAP). Patients are asked to place their

thumbs together at the anterior neck, and to wrap their fingers around their neck until they meet in the posterior part. If the patient can encircle the neck completely without excess squeezing and choking, it is considered a negative ESAP test.⁵ On the other hand, in cases where a patient has an Apnea-Hypopnea Index (AHI; used to indicate the severity of sleep apnea) score of more than five, a positive ESAP has a predictive power of 100%. However, a negative ESAP test in these cases has a predictive power of 31%. The sensitivity and specificity of ESAP were 68.3% and 100%, respectively.

In conclusion, neck circumference is an easy clinical examination tool not only for screening overweight and obesity in the pediatric population and predicting the risk of metabolic syndromes, but also to predict obstructive sleep apnea.

REFERENCES

1. Taheri M, Kajbaf TZ, Taheri MR, Aminzadeh M. Neck circumference as a useful marker for screening overweight and obesity in children and adolescents. *Oman Med J* 2016;31(3):170-175.
2. Veghari G, Sedaghat M, Banihashem S, Moharloeii P, Angizeh A, Tazik E, et al. Trends in waist circumference and central obesity in adults, northern Iran. *Oman Med J* 2012 Jan;27(1):50-53.
3. Gomez-Arbelaiz D, Camacho PA, Cohen DD, Saavedra-Cortes S, Lopez-Lopez C, Lopez-Jaramillo P. Neck circumference as a predictor of metabolic syndrome, insulin resistance and low-grade systemic inflammation in children: the ACFIES study. *BMC Pediatr* 2016;16:31.
4. Davies RJ, Ali NJ, Stradling JR. Neck circumference and other clinical features in the diagnosis of the obstructive sleep apnoea syndrome. *Thorax* 1992 Feb;47(2):101-105.
5. Edmonds PJ, Edmonds LC. A pilot study of the inability to fit hands around the neck as a predictor of obstructive sleep apnea. *N Am J Med Sci* 2015 Dec;7(12):553-557.