

Yubi-wakka Test for sarcopenia screening: influence of abdominal obesity on diagnostic performance

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Background

The Yubi-wakka (finger-ring) test is a self-administered screening test with good diagnostic performance for sarcopenia which serves as alternative to calf-circumference measurement. As an important marker of sarcopenic obesity, it is important to understand whether abdominal obesity affects the diagnostic performance of Yubi-wakka.

Objectives

This study aims to determine the influence of abdominal obesity on diagnostic performance of Yubi-wakka for sarcopenia identification amongst healthy community-dwelling older persons.

Methods

Amongst 187 participants (mean age=66.8±7.0years) from the GERILABS-2 study, we measured calf circumference (CC) via trained research assistant (both calves in sitting and standing positions) or self-administered Yubi-wakka test. Abdominal obesity was defined using NCEP cut-offs for waist circumference (WC: women>80cm, men>90cm). Outcomes were Asian Working Group (AWGS'19) diagnosis and low appendicular lean mass (ALMI). We performed area under receiver operating characteristic curve (AUC) to compare the diagnostic performance between CC and Yubi-Wakka for high versus low WC.

Results

Compared to sarcopenia prevalence of 24.1% (AWGS'19 criteria), screen-positive rates were 23.5-34.2% for CC and 16.6% for Yubi-wakka. Compared to CC measurements, Yubi-wakka showed lower discriminatory ability for sarcopenia diagnosis (AUC:0.515 vs 0.778–0.825) and low ALMI (AUC:0.568 vs 0.814–0.849) in participants with high WC. WC showed a trend for lower AUC for sarcopenia diagnosis and low ALMI ($p=0.093$ and $p=0.054$ respectively) in high WC compared with low WC due to lower sensitivity (45.8% vs 76.2%) for sarcopenia diagnosis and lower specificity (43.4% vs 68.2%) for low ALMI. There was no difference in Yubi-wakka cut-offs for high vs low WC groups (sarcopenia diagnosis:33cm; low ALMI:34cm).

Conclusion

Our results demonstrate the lower diagnostic performance of Yubi-wakka in high WC due to differential effects on sensitivity (sarcopenia diagnosis) and specificity (low muscle mass). This suggests that Yubi-wakka may be less useful as a self-administered screening tool for sarcopenic obesity in community-dwelling older adults.