# Diagnostic performance of calf circumference, thigh circumference, and sarc-f questionnaire to identify sarcopenia in elderly compared to asian working group for sarcopenias diagnostic standard

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Abstrak

Background: sarcopenia is one of many geriatric problems that may lead to major clinical outcomes. Calf and thigh circumference have good correlation with muscle mass, whereas SARC-F questionnaire is very predictive of muscle function. There has not been a study that evaluates the diagnostic performance of calf and thigh circumference in combination with SARC-F questionnaire in detecting sarcopenia. The aim of this study was to investigate the diagnostic performance of calf and thigh circumference in combination with SARC-F questionnaire compared to standard diagnostic methods of sarcopenia according to the Asian Working Group for Sarcopenia (AWGS) to predict sarcopenia in patient aged 60 years or older.

METHODS: this cross-sectional study was conducted in Geriatric Clinic Cipto Mangunkusumo Hospital, Jakarta, Indonesia during April-June 2018. Analysis was performed using receiver operating characteristic (ROC) curve to determine the cut-off point as well as sensitivity (Sn), specificity (Sp), positive and negative predictive value (PPV and NPV), positive and negative likelihood ratio (LR+ and LR-) of calf and thigh circumference as an indicator of low muscle mass, and SARC-F questionnaire score to detect decreased muscle function.

RESULTS: from 120 participants, there were 46 men (38.3%) and 74 women (61.7%). The combination of calf circumference with cut-off point below 34 cm in men and below 29 cm in women, thigh circumference below 49 cm in men and below 44 cm in women with SARC-F questionnaire score of 4 have Sn, Sp, PPV, NPV, LR+, and LR- of 15.79%; 99.01%; 75.00%; 86.21%; 15.95; and 0.85 respectively.

CONCLUSION: combination of calf and thigh circumference with SARC-F questionnaire showed good diagnostic accuracy in predicting sarcopenia in elderly outpatients.

......Latar belakang: sarcopenia merupakan salah satu masalah geriatri yang menimbulkan dampak luaran klinis yang besar. Lingkar betis dan paha berkorelasi kuat dengan massa otot, sedangkan kuesioner SARC-F merupakan prediktor fungsi otot. Belum ada studi yang mengevaluasi performa diagnostik kombinasi lingkar betis dan paha dengan kuesioner SARC-F untuk mendeteksi sarcopenia. Penelitian ini bertujuan untuk mengevaluasi performa diagnostik kombinasi lingkar betis dan paha dengan kuesioner SARC-F dibandingkan dengan metode diagnostik sarcopenia menurut the Asian Working Group for Sarcopenia (AWGS) untuk memprediksi sarcopenia pada pasien berusia 60 tahun atau lebih.

Metode: studi potong lintang  dilaksanakan di klinik geriatri Rumah Sakit Cipto Mangunkusumo, Jakarta, Indonesia selama periode April hingga Juni 2018. Analisis dilakukan sesuai kurva receiver operating characteristic (ROC) untuk menentukan titik potong beserta nilai sensitivitas dan spesifisitas, nilai duga positif dan negatif, rasio kemungkinan positif dan negatif lingkar betis dan paha sebagai acuan massa otot yang rendah, serta skor kuesioner SARC-F untuk mendeteksi penurunan fungsi otot.

Hasil: sebanyak 74 dari 120 (61,7%) subjek penelitian adalah perempuan. Kombinasi lingkar betis dengan titik potong <34 cm pada lelaki dan <29 cm pada perempuan serta lingkar paha <49 cm pada lelaki dan <44 cm pada perempuan dengan skor kuesioner SARC-F 4 memiliki nilai sensitivitas dan spesifisitas, nilai duga

positif dan negatif serta rasio kemungkinan positif dan negatif berturut-turut sebesar 15,79%; 99,01%; 75,00%; 86,21%; 15,95; and 0,85.

Kesimpulan: kombinasi lingkar betis dan paha dengan kuesioner SARC-F memiliki akurasi diagnostik yang baik dalam memprediksi sarcopenia pada pasien lanjut usia