

## Korelasi asupan $\beta$ -karoten dan kadar $\beta$ -karoten serum dengan massa dan kekuatan otot lansia di Panti Werdha = Correlation of carotene intake and carotene serum level with mass and muscle strength among institutionalized elderly / Evi Verawati

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Abstrak

**ABSTRAK**

Proses penuaan dan munculnya berbagai penyakit pada lanjut usia (lansia) menyebabkan penurunan massa dan kekuatan otot. Penyebab sarkopenia multifaktorial, salah satunya adalah stres oksidatif. Defisiensi vitamin antioksidan C, E dan  $\beta$ -karoten umum terjadi pada lansia. Penelitian potong lintang ini bertujuan untuk melihat korelasi asupan  $\beta$ -karoten dan kadar  $\beta$ -karoten serum dengan massa dan kekuatan otot lansia. Pengambilan subjek dilakukan dengan consecutive sampling, didapatkan 52 lansia memenuhi kriteria penelitian. Data asupan  $\beta$ -karoten menggunakan metode food frequency questionnaire (FFQ) semikuantitatif. Dilakukan penilaian status gizi dengan Mini Nutritional Assessment-Short Form (MNA-SF), pemeriksaan massa otot dan kekuatan genggam tangan serta pemeriksaan kadar  $\beta$ -karoten serum. Didapatkan asupan  $\beta$ -karoten yang kurang pada 76,9% subjek dengan rerata 1,5 (0,68) mg. Nilai median kadar  $\beta$ -karoten 0,17 (0,03-0,84) mol/L dan 71,2% subjek tergolong rendah. Rerata massa otot 37,41 (7,61) kg dan 100% subjek kategori normal. Nilai tengah kekuatan genggam tangan 22,0 (12,42) kg, sebagian besar (56,25%) kategori normal. Didapatkan korelasi positif lemah signifikan antara asupan  $\beta$ -karoten dengan massa otot ( $r = 0,3$ ,  $p = 0,03$ ) dan kekuatan genggam tangan ( $r = 0,39$ ,  $p = 0,004$ ). Tidak terdapat korelasi antara kadar  $\beta$ -karoten serum dengan massa otot ( $r = 0,19$ ,  $p = 0,188$ ) dan kekuatan genggam tangan ( $r = 0,19$ ,  $p = 0,167$ ).

**ABSTRACT**

The aging process and the emergence of various diseases in elderly caused decrease in muscle mass and strength. The etiology of sarcopenia is multifactorial and one of the causes is oxidative stress. Deficiency vitamin C, E and  $\beta$ -carotene is common in elderly. The aim of this study was to determined whether dietary intake and serum levels of  $\beta$ -carotene are correlated with mass and muscle strength in elderly. We conducted cross-sectional analyses in 52 institutionalized elderly during April-Mei 2016. The assesment of  $\beta$ -carotene intake with food frequency questionnaire (FFQ) semiquantitative, nutritional status by the Mini Nutritional Assessment-Short Form (MNA-SF), muscle mass measurement, handgrip strength and  $\beta$ -carotene serum level.  $\beta$ -carotene intake in 76.9% subjects was less with mean 1.5 (0.68) mg. The median value of  $\beta$ -carotene serum was 0.17 (0.03 to 0.84) mol/L which 71.2% o subjects

categorized low. Muscle mass mean 37.41 (7.61) kg which 100% subjects were normal. Median handgrip strength was 22.0 (12-42) kg, with 56,25% in normal category. A weak positive correlation between the intake of  $\beta$ -carotene with muscle mass ( $r = 0.3$ ,  $p = 0.03$ ) and hand grip strength ( $r = 0.39$ ,  $p = 0.004$ ). No correlation found between serum levels of  $\beta$ -carotene with muscle mass ( $r = -0.19$ ,  $p = 0.188$ ) and hand grip strength ( $r = -0.19$ ,  $p = 0.167$ ).