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Korelasi Rasio Asupan Asam Lemak Omega-3/Omega-6 dan Kadar Asam Lemak Omega-3 Membran Eritrosit dengan Massa Otot Pada Usia Lanjut di Panti Wreda = Correlations of Omega-3 and Omega-6 Fatty Acids Intake Ratio and Omega-3 Fatty Acids Erythrocyte Membrane Levels with Muscle Mass Among Institutionalized Elderly

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Abstrak

Penurunan massa otot pada usia lanjut menimbulkan sarkopenia,salah satu penyebabnya adalah proses inflamasi. Rasio asam lemak omega-3/omega-6 dapat memengaruhi proses inflamasi, namun hubungannya dengan massa otot masih menunjukkan hasil yang beragam. Penelitian potong lintang ini bertujuan untuk mengeksplorasi korelasi rasio asupan asam lemak omega-3/omega-6 dan kadar asam lemak omega-3 dengan massa otot pada usia lanjut di lima panti wreda yang terdaftar di Kota Tangerang Selatan. Penelitian ini melibatkan 101 usila yang didapatkan menggunakan proportional random sampling. Rasio asupan asam lemak omega-3 dan omega-6 dinilai menggunakan food record 3x24 jam dan food frequency questionnaire semikuantitatif, kadar asam lemak omega-3 membran eritrosit diukur menggunakan gas chromatography-mass spectrometry, dan pemeriksaan massa otot menggunakan bioelectrical impedance analysis. Analisis korelasi menggunakan uji Spearman. Didapatkan rerata usia subjek adalah 75.5 ± 7.6 tahun dengan 73.3% subjek adalah perempuan. Rasio asupan asam lemak omega-3/omega-6 subjek menggunakan food record adalah 0,09 (0,05-0,22) dan 0,08 (0,05-0,23) menggunakan FFQ semikuantitatif. Nilai tengah kadar asam lemak omega-3 membran eritrosit subjek untuk ALA=10,06 (4,9-24,9) µg/mL, EPA=14,6 (5,06-81,02) µg/mL, DHA=115,5 (20,6-275,09) µg/mL, dan total omega-3=144,1 (89,3-332,1) µg/mL. Nilai tengah massa otot subjek adalah 35,5 (22,8-63,5) kg. Hasil penelitian ini menunjukkan tidak terdapat korelasi antara rasio asupan asam lemak omega-3/omega-6 dengan massa otot baik menggunakan food record (r = -0.2, p = 0.07), maupun FFQ semikuantitatif (r = 0.01, p = 0.9), dan tidak terdapat korelasi antara kadar ALA, EPA, DHA, total asam lemak omega-3 membran eritrosit dengan massa otot berturut-turut (r = -0.03, p = 0.8; r = 0.01, p = 0.9; r = -0.06, p = 0.5; dan r = -0.02, p = 0.8). <hr /> The phenomenon of muscle mass deterioration appeared in the elderly called sarcopenia, one of the reasons was the inflammatory process. The ratio of omega-3 and omega-6 fatty acids are known to influence the inflammatory process. However, the relationship of this ratio with muscle mass are still conflicting. This cross-sectional study aimed to explore the correlations of omega-3/omega-6 fatty acids intake ratio and omega-3 fatty acids erythrocyte membrane levels with muscle mass among the elderly in five registered nursing homes in South Tangerang City. This study involved 101 elderly from the proportional random sampling method. The ratio of omega-3 and omega-6 fatty acids intake was assessed using 3-days food records and semi-quantitative food frequency questionnaire (SQ-FFQ). Moreover, omega-3 fatty acid erythrocyte membrane levels were measured using gas chromatography-mass spectrometry and muscle mass were examined using bioelectrical impedance analysis. We used Spearman analysis to investigate the correlation. The mean age of the participants was 75.5 ± 7.6 years and most of the participants were female (73.3%). Furthermore, the median value of omega-3 and omega-6 fatty acid intake ratio was 0.09 (0.05 – 0.22) using 3-days food records and 0.08 (0.05 – 0.23) using SQ-FFQ, the median value of omega-3 erythrocyte membrane levels for ALA = 10.06 (4.9-

24.9) µg/mL, EPA = 14.6 (5.06 – 81.02) µg/mL, DHA = 115.5 (20.6 – 275.09) µg/mL, total omega-3 = 144.1 (89.3 – 332.1) µg/mL, and the median value of muscle mass were 35.5 (22.8 – 63.5) kg. We did not find strong correlation between omega-3/omega-6 fatty acids intake ratio and muscle mass using either 3-days food records ($r = -0.2$, $p = 0.07$), or SQ-FFQ ($r = 0.01$, $p = 0.9$), and no strong correlations found between ALA, EPA, DHA, total omega-3 fatty acids erythrocyte membrane levels and muscle mass ($r = -0.03$, $p = 0.8$; $r = 0.01$, $p = 0.9$; $r = -0.06$, $p = 0.5$; and $r = -0.02$, $p = 0.8$), respectively.</p>