

Korelasi Antara Appendicular Skeletal Muscle Index Praoperasi Dengan Kekuatan Genggam Tangan Pascaoperasi Pada Pasien Laparotomi Elektif = The Correlation Between Preoperative Appendicular Skeletal Muscle Index with Postoperative Handgrip Strength Among Elective Laparotomy Patients

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Abstrak

Latar Belakang: Laparotomi merupakan pembedahan mayor yang dapat menyebabkan penurunan massa otot rangka dan kapasitas fungsional, seperti kekuatan genggam tangan (KGT). Berbagai studi membuktikan penurunan KGT pascaoperasi menimbulkan komplikasi pascaoperasi, serta KGT berkorelasi erat dengan appendicular skeletal muscle index (ASMI). Pengaruh ASMI praoperasi terhadap KGT pascaoperasi belum banyak dilakukan penelitian, sehingga penelitian ini bertujuan menilai korelasi ASMI praoperasi dengan KGT pascaoperasi.

Metode: Studi observasional prospektif dilakukan pada subjek berusia 18 – 65 tahun di RS pendidikan tersier, RSUPN Dr. Cipto Mangunkusumo, yang dirawat untuk laparotomi elektif pada Maret sampai Juni 2023. Pengukuran ASMI praoperasi menggunakan bioimpedance analysis (BIA) multifrequency seca® mBCA 525 dengan cutoff laki-laki > 7,0kg/mg² dan perempuan >5,7 kg/m². Pengukuran KGT pada tangan kanan dan kiri pascaoperasi pada hari ke-6 pascaoperasi (POD-6) dengan dinamometer tangan spring-type CAMRY® dengan cutoff laki-laki >28 kg/m² dan perempuan >18 kg/m². Analisis bivariat dan multivariat digunakan untuk menilai hubungan variabel bebas dan terikat, serta mengidentifikasi faktor perancu yang berhubungan dengan KGT pascaoperasi.

Hasil: Pada 85 subjek penelitian, sebanyak 98,82% subjek memiliki ASMI praoperasi rendah, 72,94% subjek memiliki KGT pascaoperasi tangan kanan menurun, dan 80% subjek memiliki KGT pascaoperasi tangan kiri menurun dari cutoff. Didapatkan hasil signifikan pada korelasi ASMI praoperasi dengan KGT pascaoperasi tangan kanan ($r=0,444$, $p<0,001$) dan kiri ($r=0,423$, $p<0,001$). Analisis lanjutan dengan regresi linier untuk faktor perancu didapatkan indeks massa tubuh (IMT) adalah faktor paling signifikan meningkatkan KGT tangan kanan dan kiri pascaoperasi.

Kesimpulan: Terdapat hubungan yang bermakna secara statistik pada korelasi ASMI praoperasi dengan KGT pascaoperasi laparotomi elektif.

.....Background: Laparotomy is a major surgery that can lead to a decrease in skeletal muscle mass and functional capacity, such as handgrip strength (HGS). Various studies have shown that HGS is decreasing after surgery can result in postoperative complications, and HGS is closely correlated with the appendicular skeletal muscle index (ASMI). Research on the preoperative influence of ASMI on postoperative HGS is limited, so this study aims to assess the correlation between preoperative ASMI and postoperative HGS.

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Methods: A prospective observational study was conducted on subjects aged 18-65 years at the tertiary education hospital, RSUPN Dr. Cipto Mangunkusumo, who underwent elective laparotomy from March to June 2023. Preoperative ASMI measurements were taken using multifrequency bioimpedance analysis (BIA) with seca® mBCA 525, with a cutoff for males > 7.0 kg/m² and females > 5.7 kg/m². Postoperative

HGS measurements for the right and left hands on postoperative day 6 (POD-6) were conducted using a spring-type hand dynamometer CAMRY® with a cutoff for males > 28 kg/m² and females > 18 kg/m². Bivariate and multivariate analyses were employed to assess the association between independent and dependent variables, as well as to identify confounding factors associated with postoperative HGS.

Results: In 85 research subjects, 98.82% had low preoperative ASMI, 72.94% experienced a decrease in postoperative right HGS, and 80% had a decrease in postoperative left HGS from the cutoff. Significant results were obtained in the correlation between preoperative ASMI and postoperative right HGS ($r=0.444$, $p<0.001$) and left HGS ($r=0.423$, $p<0.001$). Further analysis with linear regression for confounding factors revealed that body mass index (BMI) was the most significant factor in increasing postoperative HGS for both right and left hands.

Conclusion: There is a statistically significant in the correlation between preoperative ASMI and postoperative HGS in elective laparotomy.