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"Sarcopenia in Lower Extremity Reconstruction"

Introduction:

Sarcopenia is linked to poor outcomes throughout the surgical literature and can be assessed on preoperative imaging to potentially aid in risk stratification. This study examined the effects of sarcopenia on surgical morbidity following lower extremity (LE) reconstruction, and also compared two methods of assessment, one of which is novel ("ellipse method").

Methods:

A retrospective cohort study of fifty patients receiving free flap-based reconstruction of the LE was performed. Bilateral psoas density and area were quantified at L4 through tracing ("traditional method") and encircling ("ellipse method") to calculate Hounsfield Unit average calculation (HUAC). Logistic regression and ROC analysis for the primary outcome of any post-operative complication was used to determine HUAC cutoffs (≤ 20.7 vs. ≤ 20.6) for sarcopenia. Risk of complications associated with sarcopenia was evaluated using Fisher's exact tests.

Results:

Twelve patients (24%) met criteria for sarcopenia via the traditional method and sixteen (32%) via the ellipse method. By both methods, sarcopenic patients were older and more often female and diabetic. These patients also had higher ASA scores and lower serum prealbumin levels. The ellipse method was found to be more accurate, sensitive, and specific than the traditional method in predicting postoperative morbidity ($p = 0.009$). Via the ellipse method, sarcopenic patients were at higher risk for any complication ($p = 0.002$) and were at a higher risk for a deep vein thrombus or pulmonary embolism via the traditional method ($p = 0.047$).

Conclusions:

Sarcopenia is associated with greater pre- and postoperative morbidity in LE reconstruction. The novel ellipse method is a simplified and accurate method of assessing sarcopenia that can be easily performed in the clinical setting.