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Muscle Assessment through the Nutrition Focused Physical Exam Compared to Skeletal Muscle Index Measured by CT Imaging.

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Keywords

Nutrition focused physical exam, computed tomography, mid upper-arm circumference

Abstract

Research Outcome

The Nutrition Focused Physical Examine (NFPE) is a tool, primarily used by Registered Dietitian Nutritionists (RDNs), to assess subcutaneous fat and muscle stores to aid in the diagnosis of malnutrition. The overall goal of this study is to compare and contrast muscle assessment from the NFPE to skeletal muscle index (SMI) measured by CT imaging.

Methods

SMI was calculated from single cross-sectional CT scans of the 3rd lumbar in 14 oncology and 12 organ transplant patients. Mid upper-arm circumference (MUAC) was also measured in all participants. We described the relationship between SMI, MUAC and muscle status using unpaired t-test. Cohen kappa was used to evaluate inter-rater reliability of muscle assessment from the NFPE.

Results

Participants with moderate and severe muscle loss had significantly lower SMI compared to individuals with normal or mild muscle loss (unpaired t-test; p-value: 0.0126). MUAC was also significantly lower in those with moderate and severe muscle loss (unpaired t-test; p-value: 0.0180). There was substantial agreement between observers for the NFPE (Cohen kappa: 0.649; SE: 0.111).

Conclusion

Muscle status evaluated by NFPE strongly correlates with SMI and MUAC. Results from this study suggest that NFPE is an effective tool in capturing broad muscle status in transplant and oncology patients. Furthermore, our results demonstrate that those competent in NFPE assessment procedures demonstrate good inter-rater reliability.

Future studies are needed to determine if SMI and NFPE can delineate more specifically between normal, mild, moderate and severe muscle loss.