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Measurement of Sarcopenia Associated with the Extent of Gastrointestinal Oncological Disease

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Abstract : Introduction: Peritoneal malignancies are challenging cancers to manage. While cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (CRS and HIPEC) may offer a cure, it's considered radical and morbid. Pre-emptive identification of deconditioned patients for optimization may mitigate the risks of surgery. However, the difficulty lies in the scarcity of validated predictive tools to identify high-risk patients. In recent times, there has been growing interest in sarcopenia, which can occur as a result of malnutrition and malignancies. Therefore, the purpose of this study was to assess the utility of sarcopenia in predicting post-operative outcomes. Methods: A single quaternary-center retrospective study of CRS and HIPEC patients between 2017-2020 was conducted to determine the association between pre-operative sarcopenia and post-operative outcomes. Lumbar CT images were analyzed using Slice-o-matic® to measure sarcopenia. Results : Cohort (n=94) analysis found that 40% had sarcopenia, with a majority being female (53.2%) and a mean age of 55 years. Sarcopenia was statistically associated with decreased weight compared to non-sarcopenia patients, 72.7kg vs. 82.2kg (p=0.014) and shorter overall survival, 1.4 years vs. 2.1 years (p=0.032). Post-operatively, patients with sarcopenia experienced more post-operative complications (p=0.001). Conclusion: Complex procedures often require optimization to prevent complications and improve survival. While patient biomarkers – BMI and weight – are used for optimization, this research advocates for the identification of sarcopenia status for pre-operative planning. Sarcopenia may be an indicator of advanced disease requiring further treatment and is an emerging area of research. Larger studies are required to confirm these findings and to assess the reversibility of sarcopenia after surgery.

Keywords : sarcopaenia, cytoreductive surgery, hyperthermic intraperitoneal chemotherapy, surgical oncology
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