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Association Between Physical Function, Muscle Mass, and Physical Activity at the Initiation of Neoadjuvant Chemotherapy in Patients With Pancreatic Cancer

Topic: Miscellaneous

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BACKGROUND

Neoadjuvant chemotherapy is recommended for pancreatic cancer patients but may lead to declines in muscle strength and physical function. Preoperative physical function deterioration is associated with an increased risk of postoperative complications. This study aimed to investigate physical function, muscle mass, and physical activity levels at the initiation of chemotherapy in pancreatic cancer patients.

METHODS

Patients undergoing neoadjuvant chemotherapy before planned surgery at our hospital's gastrointestinal surgery department were included. Physical function was assessed using handgrip strength, the Timed Up and Go (TUG) test, and the six-minute walk distance (6MWD). Limb muscle mass was measured with the InBody S10. Physical activity levels were evaluated with the International Physical Activity Questionnaire (IPAQ), based on continuous walking for at least 10 minutes. Statistical analyses used Spearman's rank correlation coefficient.

RESULTS

Participants (n = 6, aged 57-77 years, 5 men, 1 woman) had the following measurements: handgrip strength (21.3-40.9 kg), TUG (4.86-9.19 s), 6MWD (400-571 m), and muscle mass-right upper limb (1.53-3.34 kg), left upper limb (1.35-3.46 kg), right lower limb (5.51-11.35 kg), left lower limb (5.54-11.02 kg). Physical activity levels ranged from 0 to 257 minutes. The correlation between 6MWD and physical activity was -0.3 (p = 0.68), while the correlation between lower limb muscle mass and physical activity was 0.9 (p = 0.08).

This study suggests a potential association between lower limb muscle mass and physical activity at the initiation of neoadjuvant chemotherapy for pancreatic cancer. Although no significant correlation was found between 6MWD and physical activity, the strong correlation between lower limb muscle mass and physical activity indicates that maintaining physical activity may help preserve muscle mass. Muscle loss is common in cancer treatment, and physical activity may mitigate this. Future large-scale longitudinal studies are needed to further explore physical function, muscle mass, and physical activity, as well as effective exercise interventions for preserving muscle mass in pancreatic cancer patients.

CONCLUSION

This study suggests that maintaining physical activity may help preserve muscle mass and physical function during neoadjuvant chemotherapy in pancreatic cancer patients. Further research is needed to explore the long-term effects of physical activity on muscle mass and physical function, as well as to identify effective exercise interventions.

Statement of Disclosures

None

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