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The Impact of Physical Activity on Fatigue and Quality of Life in Patients with Neuroendocrine Tumors: A Cross-Sectional Study

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BACKGROUND

Physical activity is beneficial across the cancer continuum, from prevention through treatment and survivorship. It has been associated with a 10–20% reduction in the incidence of several solid tumors and a 40–50% decrease in cancer-specific mortality in breast, prostate, and colorectal cancers, along with improvements in fatigue and quality of life. The role of exercise in patients with neuroendocrine tumors (NETs) remains poorly characterized. We aimed to describe baseline physical activity among patients with NETs and examine its association with fatigue and disease-related symptoms.

METHODS

We conducted a retrospective analysis of cross-sectional data from consecutive patients with a confirmed diagnosis of NET seen at the Huntsman Cancer Institute Neuroendocrine Tumor Clinic between January and March 2026. Patients with more than 50% missing responses on any questionnaire were excluded. Physical activity, fatigue, and disease-related symptoms were assessed using the Rapid Assessment of Physical Activity (RAPA), EORTC QLQ-FA12, and EORTC QLQ-GINET21. Demographic and clinical data were extracted from electronic medical records. Associations between physical activity and patient-reported outcomes were evaluated using linear regression. The study was approved by the Institutional Review Board, and informed consent was waived since the questionnaires were administered as part of standard clinical care.

RESULTS

Preliminary analyses included 95 patients (62.1% male; 37.9% female; mean age 62.1 ± 11.1 years; mean BMI 29.5 ± 7 kg/m^2). Most tumors originated in the small bowel (45.3%), were well differentiated (89.5%), and had distant metastases (81.1%). Based on RAPA, 54.7% of patients were classified as underactive, and 41.3% reported no regular strength or flexibility training. Lower physical activity levels were significantly associated with greater fatigue ($p < 0.001$), with a RAPA score <5.29 identifying patients with meaningful increases in fatigue. Disease- or treatment-related symptoms were not significantly associated with

physical activity. More physically active patients also reported better social and sexual functioning ($p < 0.05$).

CONCLUSIONS

These preliminary findings represent one of the first comprehensive assessments of physical activity in patients with NETs and demonstrate that higher activity levels are associated with reduced fatigue and better quality-of-life outcomes, consistent with evidence from other solid tumors. Given that over half of the patients were underactive and many reported no strength or flexibility training, this study highlights an opportunity to implement structured exercise interventions to optimize patient outcomes. Prospective studies are needed to establish evidence-based exercise recommendations for this population, and a prospective trial is in development at our institution.

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