

PHYSICAL PERFORMANCE FOLLOWING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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BACKGROUND AND PURPOSE: Patients undergoing hematopoietic stem cell transplantation (HSCT) are at risk for strength impairments, functional limitations, and frailty. Contributing factors include inactivity, chemotherapy side effects, and transplant-related complications. Research describing how physical declines affect patients during and after transplant is limited. The purpose of this study is to report the short-term physical performance of patients receiving HSCT.

METHODS AND MATERIALS: In this pilot study, subjects were 21 years or older and were undergoing outpatient HSCT at Mayo Clinic. Exclusion criteria included previous HSCT. Subjects were identified through pre-transplant education classes and participated in three data collection sessions: day of transplant, 8-14 days post, and 15-21 days post-transplant. Primary outcome measures were the Fried Frailty Criteria and the Short Physical Performance Battery (SPPB). Data collected at each session included: resting heart rate, weight, grip strength, balance, gait speed, and lower extremity strength. A chart review was conducted to determine comorbidities.

ANALYSES: Statistical analyses will examine the change in physical performance in patients undergoing HSCT.

RESULTS: Potential results will determine the effects of HSCT on physical performance within 21 days following transplantation. Previous studies have solely demonstrated the long-term effects of HSCT on physical performance and fall risk. The working hypothesis suggests transplantation will result in decreased scores on the SPPB and a classification of frail on the Fried Frailty Criteria. Short-term effects of HSCT on physical performance may help determine appropriate interventions to mitigate functional decline.

CONCLUSIONS: Further investigation of the effect of HSCT on physical performance can demonstrate physical decline described by patients following transplant. Following this pilot study, a randomized control trial may be warranted.

IMPLICATIONS: Physical therapy interventions can decrease the risk of frailty and falls when physical performance declines. This research may indicate physical therapy is warranted for patients undergoing HSCT.