Comparison of Function, Fatigue, Frailty in Patients with Malignant Hematology, Pre-Bone Marrow Transplant and Solid Tumors

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Introduction: Impaired physical function, fatigue and frailty are commonly seen in patients undergoing cancer treatment as well as in cancer survivors. These can have a significant adverse effect on the quality of life of the affected individuals.

Objectives: To compare the prevalence of impairment of physical function, fatigue and frailty in three populations of cancer patients—malignant hematology, patients with malignant hematology (MH) selected to undergo bone marrow transplant (pre-BMT) and patients with solid tumors (ST).

Methods: Retrospective chart review of patients referred to a cancer rehabilitation clinic in a cancer institute. The medical charts of 355 patients with ST (Breast-264; prostate-20; lung-34 and GI-37), 48 patients with MH (AML/ALL-5, Lymphoma-23, Myeloma-18, other:2) and 29 patients pre-BMT (AML/ALL-4, Lymphoma-11 and myeloma-14) were reviewed. Mean age: ST-67, MH-67 and Pre-BMT-55. Gender: ST-305 female; 50male; MH-25 female and 23 male; Pre-BMT-12 female and 17 male. Information reviewed: a) Patient Reported Outcome Measure Information System (PROMIS) Physical Function short form and Fatigue short form b) Timed Up and Go (TUG) test c) Sit to stand in 30 seconds test d) Grip Strength (in Kg), e) weight loss. Frailty or pre-frailty was determined by using modified Fried frailty criteria. Elements included: a) exhaustion (PROMIS-Fatigue score) b) low physical activity (PROMIS-Physical Function score) c) slowness (TUG) d) weakness (Grip strength) and e) weight loss. If person had 3/5 elements present, they were considered “frail” and if 1-2/5 elements were present, they were considered “pre-frail”.

Results: Impaired physical function: 198/348 of ST patients (57%), 35/48 of MH patients (72.9%) and 9/28 pre-BMT (32%). Significant fatigue: 122/349 ST patients (35%), 24/46 of MH patients (52%) and 6/28 pre-BMT patients (21%). Frail and Pre-frail: 137/315 (44%) of ST patients met “pre-frail” criteria and 143/315 (45%) ST patients met frail criteria. 14/43 (33%) of MH patients were “pre-frail” and 27/43 (63%) MH patients were frail. 16/28 (57%) of pre-BMT patients were “pre-frail” and 7/28 (25%) pre-BMT patients were frail.

Conclusion: Malignant hematology patients are more likely to have impaired self-reported physical function, significant fatigue and be frail compared to patients selected to undergo BMT and those with solid tumors at time of initial presentation to a cancer rehabilitation clinic. Physical impairments, fatigue and frailty should be identified early at time of diagnosis, during active treatment and during survivorship period and appropriate rehabilitation interventions initiated to maximize function and quality of life.