110

STEPS to Enhance Physical Activity after Hematopoietic Cell Transplantation for Multiple Myeloma

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Topic Significance & Study Purpose/Background/Rationale: High dose chemotherapy followed by hematopoietic cell transplantation (HCT) is an intensive cancer treatment associated with devastating complications. Persistent physical inactivity after HCT is sufficient to cause muscle mass loss, decreased strength, physical deconditioning, and potential progression to disability. Sustainable physical activity incorporated into activities of daily living may break this negative cycle. This pilot, randomized controlled trial tested the feasibility and preliminary effects of a free-living physical activity intervention (STEPS) compared to usual care on fatigue (primary outcome), functional ability, muscle strength, physical activity, and quality of life (secondary outcomes) in people with multiple myeloma treated with autologous HCT.

Methods, Intervention, & Analysis: This study used a two-group, randomized block, repeated measures design (n = 32). The six-week STEPS intervention aimed to increase physical activity by 10% weekly through education, goal-setting, daily step tracking using wearable technology, and guided integration of physical activity into daily routines. Data were collected using self-report questionnaires, physical performance tests, and wrist actigraphy prior to HCT and seven weeks following hospital discharge. Split-plot 2 × 2 ANOVAs were used to analyze the preliminary group (STEPS versus usual care), time (prior to HCT versus seven weeks after hospital discharge), and group x time interactions effects.

Findings & Interpretation: The STEPS group achieved their daily physical activity goal 53% of the time. Compared to usual care, the STEPS group experienced greater appetite loss ($p = .05$), more diarrhea ($p = .05$), and slept more ($p = .03$). Both groups reported improvements in mental fatigue ($p = .02$), emotional functioning ($p = .01$), pain ($p = .009$), sleep disturbance ($p = .001$), anger ($p = .003$), anxiety ($p = .001$), and depression ($p = .02$) seven weeks after HCT discharge compared to baseline. Conversely, both groups climbed the stairs slower ($p = .003$) and had weaker hand-grips ($p < .05$).

Discussion & Implications: The STEPS intervention is feasible for people with multiple myeloma treated with HCT. Although preliminary, differential improvement in the STEPS group's patient outcomes did not occur (no significant group x time interactions). Both groups reported improved symptoms and experienced some declines in physical function seven weeks after HCT hospital discharge.

111

Another Tool on Your Assessment Belt - Using the Orthostatic Algorithm© to Reduce Patient Falls

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Topic Significance & Study Purpose/Background/Rationale: Falls are a serious risk for patients undergoing blood and marrow transplant (BMT) or treatment with cellular immunotherapy (CI) and may result in injury or death. Identifying patients at risk for fall can be challenging. The fall rate on our inpatient BMT-CI unit was 3.70% per 1000 patient days and the fall with injury rate was 0.97% per 1000 patient days with 32.14% attributed to orthostatic hypotension in fiscal year (FY) 2016. A detailed chart analysis was conducted on all patients that fell to identify patient trends. An algorithm was developed based on the similar patient fall circumstances identified in the chart analysis, which were transplant day -1 to +3, fever > 101.0, orthostatic positive vital signs, and complaints of lightheadedness or dizziness.

The purpose of this research study was to determine if an orthostatic vital sign algorithm used in the BMT-CI population has decreased inpatient falls.

Methods, Intervention, & Analysis: A pre-test post-test program evaluation was conducted for one year pre and one year post implementation of the BMT-CI Orthostatic Vital Sign Algorithm on newly admitted BMT-CI inpatients. Detailed information for 321 admitted patients was included in the post implementation data. Nursing adherence with the algorithm was also monitored and methods to increase compliance such as daily huddle reminders, chart audits, and reminder cards employed.

Findings & Interpretation: Overall falls post-implementation decreased to 3.44% with zero falls and fall-related injuries due to orthostatic hypotension. Adherence rate of nurses to the algorithm increased from 60% to 93% indicating successful adoption of the algorithm.

Discussion & Implications: The algorithm provides nursing with an additional tool that can be utilized for the assessment of the unique BMT-CI patient. The algorithm has been adopted as standard of practice and is used for early identification of patients at high risk for falls. Preventive treatment interventions can be performed leading to the prevention of patient falls that may have otherwise occurred.

NURSING ORAL ABSTRACTS #2

112

Initiating the Conversation of Oncofertility: The Creation of a Dedicated BMT Oncofertility Nurse Coordinator in the Transplant and Cellular Therapy Patient Population

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Topic Significance & Study Purpose/Background/Rationale: Patients undergoing hematopoietic stem cell transplantation face a high risk of infertility. Despite existing ASCO, ASRM and NCCN fertility preservation guidelines, as many as 68% of oncology patients report that fertility was not discussed prior to or during therapy. Since infertility in survivorship is known to increase distress and contribute to