Benefits of Intrahospital Exercise Program in Pediatric Hematopoietic Stem Cell Transplant- A Randomized Control Trial

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Results

Background

• Pediatric stem cell transplant patients can be quarantined for months while hospitalized, much of which time is spent immobilized putting these patients at a higher risk for loss of muscle strength, functionality, endurance, and quality of life.
• Studies have shown exercise as an effective countermeasure to deconditioning in stem cell transplant patients but are lacking in the pediatric population.
• This pilot study is being conducted to determine the effects of an intra-hospital exercise regimen.

Objectives

1. To examine the effect of exercise on conditioning functionality, mobility and strength, following pediatric hematopoietic stem cell transplant and 6 weeks after transplant.
2. To determine effects of exercise on quality of life

Methods

• Prospective randomized study
• Accrual target: N=40; ages 4-21
• Intervention arm receives specially designed, low intensity, resistance based exercise regime according to age and ability.
• Physical Therapy conducts exercise 3 times weekly for 30 mins in the intervention arm.
• Control arm receives standard of care and encouragement to spend time out of bed.

Testing Measures
1. WeeFIM: measures functionality
2. 6-minute walk test (6MWT): measures endurance
4. Assessed at admit, discharge, and post 6-week discharge

Discussion

• At this stage of the study there are only 23 patients recruited out of the anticipated 40.
• Mid-study analysis found no statistical significant difference in strength and functionality between the two arms.
• There appears an increase in endurance in both arms.
• Quality of life appears to be improved in the intervention arm
• Analysis shows a gradual decrease in compliance with getting out of bed the further the patient was from their transplant.

Figure 1. Compliance Percent Overall Compliance of Time Out of Bed.

• No statistical significant difference noted between the intervention and control arms in functionality and strength at this stage of the study.
• There appears to be better quality of life in patients in the interventional arm compared to the control arm.
• Compliance with getting out of bed gradually decreases the longer they stay in the hospital
• Study is still ongoing and will complete by September of 2019