

Animal Assisted Intervention during Pediatric Outpatient Orthopedic Procedures: A pilot Study.

Introduction

Animal assisted intervention (AAI) is a broad term encompassing strategies for using human-animal interaction to achieve a beneficial outcome. The positive benefit of AAI for children undergoing stressful procedures has been demonstrated in several medical settings, except orthopedics. Cast removal can be stressful for children due a variety of reasons including the loud noise and vibrations associated with cast saws. Multiple distractions have been studied to help alleviate cast room anxiety; however, the benefits of AAI during cast removal have not been studied.

Methods

Patients between the ages of 4-18, undergoing cast removal, were enrolled in this study. Patients were excluded if they had prior behavioral conditions or cast removal. The AAI consisted of a therapy dog that was present for cast removal. When the dog was present, patients were able to pet and hold the dog. Participants were divided into the AAI and control group based on the availability of the handler for the facility dog. Patient anxiety was assessed using the Short State-Trait Anxiety Inventory (STAI-S) before and after cast removal, as well as the STAI-parent form (STAI-P), Children's fear scale (CFS) after casts removal. Pre-, intra-, and post- procedural heart rate measurements were also obtained. Statistical analysis of STAI-S pre/post, STAI-P, CFS, and heart rate between groups was performed using two-tailed t-tests and Mann-Whitney U test as appropriate.

Results

A total of 104 patients (3 AAI, 171 control) were enrolled. The mean age was 9.4 ± 2.8 . There was no difference in the mean pre-cast removal STAI-S scores ($p = 0.73$), nor post-cast removal STAI-S scores between groups ($p = 0.31$). Similarly, there was no difference in the mean CFS between groups ($p = 0.72$). Patient caregivers demonstrated similar results with no difference in the mean STAI-P scores between groups ($p = 0.77$). The mean heart rate pre-, intra-, and post- measurements were 88.0, 88.3 and 85.5 in the control group and 90.2, 88.8, and 86.9 in the dog group ($p = 0.54, 0.91, \text{ and } 0.68$ respectively). There were no adverse events associated with the use of AAI.

Discussion

The use of AAI is safe and feasible in a pediatric outpatient orthopedic clinic. We did not identify a significant anxiolytic effect of AAI during cast removal for this patient population; however, this study serves as a pilot study for further investigations of AAI in other pediatric populations undergoing more stressful outpatient procedures. Further studies will investigate the efficacy of AAI during pin removal and injections procedures in patients with developmental or behavioral conditions.