Timing of Supervised Physical Therapy after Hindfoot Fractures: Randomized Controlled Trial
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Introduction/Purpose: Fractures to the hindfoot, including the talus and calcaneus, have devastating long-term functional outcomes. To date, no randomized trials have been done assessing the best time to initiate physical therapy after surgical fixation of these fractures. The purpose of this study is to assess whether initiating a supervised physical therapy program including therapeutic exercise and manual therapy two weeks post-operatively (EARLY) versus seven weeks post-operatively (LATE) in patients following surgical fixation for these fractures results in differences in clinical outcomes. The secondary purpose of this study is to assess what factors predict outcomes after these hindfoot fractures.

Methods: Fifty patients between the ages of 18-70 years having undergone an open reduction internal fixation (ORIF) of the calcaneus or talus were recruited to participate from two foot and ankle fellowship-trained orthopedic surgeons. Subjects were randomly assigned to initiate formal physical therapy starting within 2 weeks post-operatively (EARLY) (n=26) or 8 weeks post-operatively (LATE) (n=24). Treatment for both groups consisted of impairment based manual therapy and therapeutic exercise. The lower extremity functional scale (LEFS), the American Orthopeadic Foot and Ankle Society (AOFAS) hindfoot scale, range of motion (ROM), pain and girth measurements to assess swelling were the outcome measures for this study. Subjects in both groups were seen for a total of 10 visits. All subjects underwent follow-up assessments at 3 months, 6 months, and 12 months post-operatively. Between-group differences were analyzed using ANCOVAs with baseline scores as covariates. Regression was used to assess factors predicting patients' self-reported outcomes.

Results: Results demonstrated no significant differences between the groups at any time point (3, 6 or 12 months) for the LEFS (p=0.637) or the AOFAS (p=0.634). No significant differences existed between the two groups for active ROM (p=0.106) or swelling (p=0.389). Subjects in both groups demonstrated improved AOFAS scores from baseline to one year follow-up by 26 points (p=0.00); however, most of the change occurred within the first 6 months post-operatively with only a 1.722 (95% CI -3.63 to 7.08) change between 6 to 12 month follow-up visits. Baseline anxiety (as measured by the Beck Anxiety Questionnaire) significantly predicted LEFS scores at both the 6 month and 12 month follow-up periods (r=-0.55, p=0.0015 and r=-0.53, p=0.007).

Conclusion: This study did not demonstrate that initiating early supervised physical therapy (within 2 weeks after surgical fixation) improves self-reported outcomes for patients after surgical fixation of a hindfoot fracture as assessed by the LEFS, the AOFAS hindfoot scores, or clinical outcomes such as ROM or swelling compared to patients initiating a formal physical therapy program seven weeks after surgery. Although, many these patients typically have less than ideal clinical outcomes, it is possible that addressing other factors such as anxiety may help improve long-term outcomes.

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