Severity of Flatfoot Deformity is Not Associated with the Degree of Pain and Impairment in Physical Function

Daniel Pereira, Matthew R William[1], Pooya Hosseinzadeh
[1]Washington University

INTRODUCTION: Pediatric flexible flatfoot (FF) is a deformity that is commonly asymptomatic but may present with pain affecting mobility and function. It is not clear why some flatfeet become painful. A common surgical intervention for painful pediatric FF is calcaneal lengthening osteotomy (CLO). The purpose of this retrospective study is to understand the relationship between severity of the FF deformity (as measured by preoperative talo-first metatarsal angle on AP/lateral standing radiographs) and obesity on patient reported pain and mobility as measured by Patient Reported Outcomes Measurement Information System (PROMIS) scores in pediatric patients treated with CLO.

METHODS: Patients aged 8-18 with FF who underwent CLO were selected. Preoperative pain and mobility PROMIS scores, AP/lateral talo-first metatarsal angles, and body mass index (BMI) prior to surgery were extracted from electronic records. Linear regression and ANOVA analyses were used for statistical associations.

RESULTS: A total of 57 patients met inclusion criteria for the study with an average preoperative age of 12.2 years (range 8 - 17). Average preoperative pain and mobility PROMIS scores were 53.8 (range 32.0 - 74.4) and 41.3 (range 25.5 - 56.4), respectively. Average BMI at the time of surgery was 22.9. Average preoperative AP and lateral talo-first metatarsal angles were 19.6 degrees (range 3.6 - 39.7) and 16.3 degrees (range 2.3 - 39.9), respectively. AP and lateral angles were found to have no correlation with patient reported pain ($p = 0.73$, $p = 0.23$) or mobility ($p = 0.68$, $p = 0.10$) scores. BMI also had no correlation with pain ($p = 0.92$) or mobility ($p = 0.24$) PROMIS scores reported by these children.

DISCUSSION AND CONCLUSION: We did not find an association between severity of the deformity or obesity on pain and function reported by children with painful flexible flatfoot deformity. Other factors such as gastrosoleus contracture may play a role in pain and functional impairment in children with FF.