Do Patient Demographics Affect the ACFAS Scoring Scale?

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Purpose

The rearfoot component of the American College of Foot and Ankle Surgeons (ACFAS) scoring scale is designed to be used as a clinical instrument that measures subjective and objective parameters in prospective clinical investigations of the foot and ankle. It is also designed to serve as an assessment tool for clinicians’ decision making for treatment of various types of rear foot pathology. In this study, our purpose was to test the validity of the scoring system by determining if patient demographics affected the results of the clinical measure.

Methodology

The modified ACFAS scoring scale (Module 3) (Figure 2) was administered to patients enrolled in our ongoing longitudinal cohort flatfoot study. The scoring system was modified by eliminating the section on the frontal plane radiographic examination using the long leg axial, weightbearing view. Therefore, a total of 86 (instead of 100) points were possible using the modified scale. Those patients who presented to the podiatry clinic at Texas A&M Health Science Center (Scott and White Memorial Hospital and the Central Texas Veterans Health Care System) and who met the below inclusion and exclusion criteria (Figure 1) were asked to be a part of this study. They presented with symptomatic flatfoot defined as: a) center of pressure excursion (CPEI) equal to or less than 18%, measured in plantar pressure analysis, and b) presence of pain on palpation in one of three following areas: Tibialis posterior tendon (including entire course and insertion); Medial planter arch; Sinus tarsi or intra-lateral malleolar area.

The CPEI (Figure 3) has been studied by Song et al. for analysis of flatfoot, and for distinguishing flatfoot from rector foot type (5). The index shows the amount of deviation of the center pressure curve from a reference line (CPFL). The reference line is created by connecting maximum pressure points at the heel strike and toe off. Progression of plantar pressure during the stance phase creates the center of pressure curve. The deviation from the reference curve (CPEI) is measured at the anterior third of the foot. The index is therefore calculated by: CPEI = (CPEI/FWM) x 100, where the FW is the foot width at the anterior third of the foot.

Results

Eighty-six patients were enrolled in the study (Table 2). Most of the patients are from the Caucasian and African American populations. Of those, 64 (74%) were male and 22 (26%) were female. Forty-three, 34, 8 and 1 had high school, college, graduate school and doctorate degrees, respectively. Forty-four patients described their career work as blue-collar while 42 were white-collar. The mean age was 48 (SD = 10.9). The mean body weight was 94 kg (SD = 25.5). Thirteen (15%) and eight (9.3%) patients were previously diagnosed with diabetes mellitus type II and depression, respectively. Sixty-seven (78%) had some form of lower extremity orthopedic pain. This last factor was the only demographic factor found to be statistically significantly associated with ACFAS score. The ACFAS score was 42.2 for patients with orthopedic pain and 51.2 for patients without orthopedic pain. (p<0.05).

Analysis and Discussion

To the authors’ knowledge there has never been a study to determine if demographic factors affect the modified ACFAS scoring scale (module 3). Attempts to validate the scoring systems Modules 1 and 2 have been performed (1). Among all the factors evaluated in this study, we can surmise that the scoring scale is not affected by patient demographics other than lower extremity orthopedic pain. This study adds to the validity of the modified ACFAS rearfoot module scoring scale (mod 3) and further proves its utility in prospective clinical investigations of the foot and ankle. It appears that the scoring scale is unaffected by factors not related to the foot and ankle and thus this section of the scale seems to have construct validity.

References