Complex Clubfoot Treatment With Ponseti Method: A Latin American Multicentric Study

Abstract

Background: Complex clubfoot is a term used to describe those feet that present after treatment with a short first metatarsal, severe plantar flexion of all metatarsals, rigid equinus, and deep folds through the sole of the foot and above the heel. Ponseti has described a modification of his original technique for the treatment of the deformity. Few series have reported the treatment outcomes of this group of patients. The purpose of this study is to analyze mid-term results and complications of a large multicenter cohort.

Methods: Patients with complex clubfoot treated at 6 tertiary-care institutions with a minimum of 1-year follow-up were retrospectively analyzed. Demographic data, previous treatment, number of casts, Achilles tenotomy, recurrences, complications, and additional procedures were documented. The patients were clinically evaluated at the time of presentation, after treatment, and at the last follow-up according to the Pirani score. All variables had a nonparametric distribution and are thus described as median (interquartile range (IQR), minimum-maximum). A comparison between the variables was performed using a Mann-Whitney U test, the change within each group was performed with a Wilcoxon-designated range test. A P-value <0.05 was used to indicate statistical significance.

Results: One hundred twenty-four feet (79 patients) were evaluated. The median age at initial treatment was 7 months (IQR, 15; min-max, 1 to 53 mo). The mean follow-up was 49 months (IQR, 42; min-max, 12 to 132 mo). A median of 5 casts (IQR, 5;

min-max, 3 to 13) was required for correction. Percutaneous tenotomy of the Achilles tendon was performed in 96% of the feet. One hundred twenty-two feet (98%) were initially corrected; 2 feet could not be corrected and required a posteromedial release. The Pirani score improved significantly from a pretreatment mean of 6 points (IQR, 1; min-max, 4.5 to 6) to 0.5 (IQR, 0.5; min-max, 0 to 2.5) at the last follow-up (P <0.001). Seven feet (6%) presented minor complications related to casting. Relapses occurred in 29.8% (37/124). In this subgroup, the number of casts required at initial treatment was higher (6; IQR, 5; min-max, 1 to 12 vs. 4 IQR, 4; min-max, 1 to 13; P<0.001), and follow-up was significantly longer (62 mo; IQR, 58; min-max, 28 to 132 vs. 37 mo; IQR, 48, min-max, 7 to 115; P<0.001).

Conclusions: Ponseti method is safe and effective for the correction of complex clubfeet. Early diagnosis and strict adherence to the Ponseti principles are key to achieve deformity correction. Patients with complex clubfoot require frequent follow-up because of a higher recurrence rate.

Level of evidence: Level III-therapeutic study.

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