Missed Visits and not ADI Determine the Recurrence rates in Idiopathic Clubfoot

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INTRODUCTION:

Various demographic and socioeconomic factors influence brace compliance following idiopathic clubfoot correction by the Ponseti method. Identification of these risk factors will enable us to provide early targeted education and hence decrease recurrence. Hence we sought to determine the demographic and socioeconomic factors, insurance type and number of missed visits influencing idiopathic clubfoot recurrence in Nebraska. We hypothesized that Area Deprivation Index (ADI) and race will influence brace non-compliance and idiopathic clubfoot recurrence in the patient population in Nebraska.

METHODS:

We conducted a retrospective review of 260 idiopathic clubfoot patients initially treated at a single tertiary children's center from January 2009 to April 2024. Recurrence was defined as need for treatment such as repeat casting, PT or surgery, following initial successful treatment. Variables collected included patient demographics, treatment data, and Medicaid enrollment. Area Deprivation Index (ADI) scores (created by the University of Wisconsin) were determined by national percentile and categorized into Low Risk (ADI 1-70) or high socioeconomic and High Risk (ADI 71-100) or low socioeconomic cohorts. Missed appointment was defined as two or more consecutive missed visits.

RESULTS:

There were 183 males and 77 females, with mean age of 4.2 weeks at treatment initiation. 123 had unilateral deformity. Patients had a mean of 5 casts and 52 did not undergo tenotomy as part of their primary treatment. 78 (30%) were defined as clinical recurrence. 109 patients had an ADI of 71-100, while 76 families were on Medicaid. There were 199 Caucasians, 15 African Americans, with remainder being Hispanics or mixed race.(Tables 1-4)

Older age at diagnosis (p<0.001), bilaterality (36% vs 23%;p=0.016), lack of initial tenotomy (94% vs 64%;p<0.001), missed visits (OR=3.39;p<0.001) and non-Hispanics (47% vs 26%;p=0.03) had significantly higher recurrence. Gender, number of initial casts and Medicaid insurance did not influence recurrence(Tables 1-4). Multivariate analysis showed recurrence was most common around ADI=50 for either category of missed visits(Figure 1).

When analyzing missed visits as the outcome, African American race (73% vs 41%;p=0.015), non-Hispanics (50% vs 40%;p=0.044), and Medicaid insurance (55% vs 38%;p=0.009), had significantly higher numbers of missed visits while age and ADI were not significant factors (p=0.5).

DISCUSSION AND CONCLUSION:

Recurrence rates in idiopathic clubfoot can be targeted by focusing on modifiable risk factors, mainly two or more missed visits. We also highlight treatment initiation at the earliest possible age with tenotomy during the Ponseti technique being an essential step. Hispanics were found to have less recurrence, with missed visits being common among African Americans and families with Medicaid. Surprisingly, ADI did not influence recurrence in our sample.