

Outcomes of Ponseti Method in Treatment of Clubfeet in Children with Spina Bifida

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INTRODUCTION:

While the Ponseti method is the primary treatment for idiopathic clubfoot, its application in treating myelodysplastic clubfeet is less certain. Myelodysplastic clubfoot tends to be more severe and difficult to treat. Although the Ponseti method can initially correct these cases, there is conflicting evidence about recurrence rates and the need for additional treatment. This study aims to assess the effectiveness of the Ponseti method in treating myelodysplastic clubfeet compared to idiopathic clubfeet over a 20-year period.

METHODS:

The study conducted a retrospective review of medical records from patients treated for clubfoot at a single institution (2002-2021), comparing children with myelodysplastic and idiopathic clubfoot. Included patients were under 18, initially treated with Ponseti-casting, and had a minimum 2-year follow-up. Data on demographics, treatment details, recurrence, and Patient-Reported Outcomes Measurement Information System (PROMIS) scores were analyzed.

RESULTS:

49 myelodysplastic and 512 idiopathic clubfeet in 366 patients met inclusion criteria. Myelodysplastic cases had a median age of 5 months at presentation vs. 2 months for idiopathic cases ($P=0.002$). Initial correction was achieved in 95% of idiopathic and 87.8% of myelodysplastic feet ($P=0.185$). Recurrence rates were higher in the myelodysplastic cohort, 65.3% vs 44.1% ($P=0.005$). Surgery was necessary to treat recurrence in 59.2% of myelodysplastic and 37.7% of idiopathic cases, $P=0.003$. Follow-up was 3.9 ± 1.8 years for myelodysplastic and 3.3 ± 1.5 years for idiopathic feet, $P=0.030$. Myelodysplastic feet had lower PROMIS mobility scores; 31.94 ± 7.56 vs. 49.21 ± 8.64 , $P<0.001$

DISCUSSION AND CONCLUSION:

To our knowledge, we report the largest series of myelodysplastic clubfeet treated by Ponseti casting and the first to assess PROMIS data. Overall, the Ponseti method is as effective in obtaining initial correction in myelodysplastic clubfoot as it is in idiopathic clubfoot. However, myelodysplastic clubfeet have a higher risk of relapse and increased need for surgical interventions. Children with spina bifida may need closer follow-ups and more stringent adherence to bracing.

TABLE 1. PROMIS *idiopathic vs. spina bifida*

	Idiopathic (n=107)	Spina Bifida (n=17)	P-value
Age at most recent PROMIS in years [mean (SD)]	8.0 \pm 3.1	6.4 \pm 1.6	0.039
PROMIS mobility [mean (SD)]	49.21 \pm 8.64	31.94 \pm 7.56	<0.001
PROMIS pain [mean (SD)]	45.64 \pm 8.93	46.96 \pm 9.27	0.588
PROMIS peer relationships [mean (SD)]	52.61 \pm 9.74	51.56 \pm 6.58	0.578

Bold values indicate statistical significance

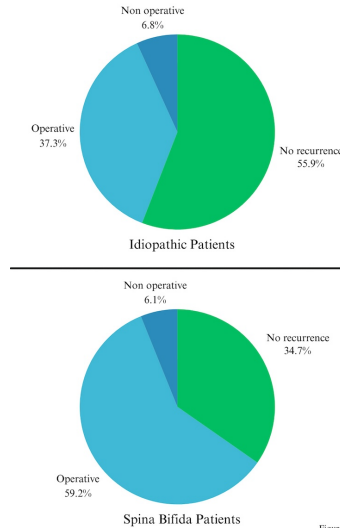


Figure 1