Conservative Treatment of Charcot Arthropathy in a Series of Spina Bifida Patients: The Experience of One Center and Review of the Literature

Reference:

Scientific Literature Review

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Podiatric Relevance:
The most common cause of childhood Charcot/neurogenic arthropathy, a process that causes destruction to bones and soft tissue surrounding joints, is spina bifida. Foot deformity occurs in 90% of children with the myelomeningocele form of spina bifida (SB) and a small percent of all SB patients go on to develop Charcot deformities. Treatment of Charcot deformities consist of non-weight bearing, immobilization or surgery—all difficult modalities for a young, active child to endure. The objective of this study was to determine if patellar tendon-bearing ankle foot orthosis, PTB-AFO, lead to a significant decrease of symptoms for children with spina bifida and Charcot arthropathy.

Methods:
In this article 350 spina bifida patients age 12 months to 22 years were followed between June 1993 and March 2004. Five (1.42%) of these patients were diagnosed with Charcot arthropathy, average age 13.7 years. All five patients had symptoms consisting of erythema, edema and warmth to the effected foot. 3/5 patients had a rocker-bottom deformity and 2/5 had ankle joint involvement at the time of the study. Initial therapy was one month of nonsteroidal anti-inflammatory drugs, oral bisphosphonates (alendronate 10mg/day) and immobilization with no decline in symptoms noted. At this time the patellar tendon-bearing ankle foot orthosis was prescribed. The device was used for a 6-24 month period and the patient’s symptoms were followed clinically for 2 years at 3 month increments.

Results:
The patients were followed for a total of 2 years after that start of therapy with the PTB-AFO. One patient’s symptoms were completely relieved at 6 months and at that point the PTB-AFO was discontinued. Three patients currently were using the PTB-AFO at the 2 year follow-up. Each were noted to have a decrease in symptoms from the beginning of the study, two having complete resolution. The final patient wore the PTB-AFO for 20 months then progressed to a solid plastic AFO. Complete elimination of symptoms was noted.

Conclusions:
This study demonstrates that using a patellar tendon bearing ankle foot orthosis is an option for children with spina bifida and Charcot deformities. Each of the patients had a decreased level of their previous symptoms at the final 2 year follow-up. For young and active patients, being able to walk without applying total body weight on the foot, makes the PTB-AFO a noteworthy option.