

Janicki JA, Poe-Kochert C, Armstrong DG, Thompson GH.

A Comparison of the Thoracolumbosacral Orthoses and Providence Orthosis in the Treatment of Adolescent Idiopathic Scoliosis: Results Using the New SRS Inclusion and Assessment Criteria for Bracing Studies.

J Pediatr Orthop. 2007 Jun;27(4):369-374.

This is a retrospective cohort study comparing the effectiveness of the thoracolumbosacral orthosis (TLSO) and the Providence orthosis in the treatment of adolescent idiopathic scoliosis (AIS) using the new Scoliosis Research Society (SRS) Committee on Bracing and Nonoperative Management inclusion and assessment criteria for bracing studies. These new criteria will make future studies comparable and more valid and accurate.

METHODS: We have used a custom TLSO (duration, 22 hours/day) and the Providence orthosis (duration, 8-10 hours/night) to control progressive AIS curves. Only 83 of 160 patients met the new SRS inclusion criteria: age of 10 years and older at initiation of bracing; initial curve of 25 to 40 degrees; Risser sign 0 to 2; female; premenarcheal or less than 1 year past menarche; and no previous treatment. There were 48 patients in the TLSO group and 35 in the Providence group. The new SRS assessment criteria of effectiveness included the percentage of patients who had 5 degrees or less and 6 degrees or more of curve progression at maturity, the percentage of patients whose curve progressed beyond 45 degrees, the percentage of patients who had surgery recommended or undertaken, and a minimum of 2 years of follow-up beyond maturity in those patients who were thought to have been successfully treated. All patients are evaluated regardless of compliance (intent to treat).

RESULTS: There were no significant differences in age at brace initiation, initial primary curve magnitude, sex, or initial Risser sign between the 2 groups. In the TLSO group, only 7 patients (15%) did not progress (≤ 5 degrees), whereas 41 patients (85%) progressed by 6 degrees or more, including the 30 patients whose curves exceeded 45 degrees. Thirty-eight patients (79%) required surgery. In the Providence group, 11 patients (31%) did not progress, whereas 24 patients (69%) progressed by 6 degrees or more, including 15 patients whose curves exceeded 45 degrees. Twenty-one patients (60%) required surgery. However, when the initial curve at initiation of bracing was 25 to 35 degrees, the results improved. Five (15%) of 34 patients in the TLSO group and 10 (42%) of 24 patients in the Providence group did not progress, whereas 29 patients (85%) and 14 patients (58%), respectively, progressed by 6 degrees or more, and 26 patients (76%) and 11 patients (46%), respectively, required surgery.

CONCLUSIONS: Using the new SRS bracing criteria, the Providence orthosis was more effective for avoiding surgery and preventing curve progression when the primary initial curves at bracing was 35 degrees or less. However, the overall success of orthotic management for AIS in both groups was inferior to previous studies. Our results raise the question of the effectiveness of orthotic management in AIS and support the need for a multicenter, randomized study using these new criteria.