Scoliosis

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Oral presentation

Adolescent girls with idiopathic scoliosis <40 degrees, treated with TLSO brace, reveal less clinical deformity than non-treated girls having similar scoliosis angle

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Objective

The goal was to compare clinical deformity among two groups of girls with adolescent idiopathic scoliosis (AIS), with curves <40 degrees: Group 1 was treated with a thoracolumbar sacral (TLSO) orthosis; and Group 2 was non-treated.

Study design

Group 1 consisted of twenty-four girls wearing the brace and Group 2 consisted of twenty-six girls without the brace, matched for Cobb angle. We examined the hypothesis that girls wearing the brace for more than six months, when compared to scoliotics without brace, may present distinct morphology of the trunk, in spite of having similar Cobb angle. Inclusion criteria: Female gender, a diagnosis of AIS, age 10–16 years, out of brace Cobb angle minimum 25 degrees, maximum 40 degrees. The braced group consisted of girls wearing a TLSO brace (Cheneau) a minimum of sixteen hours per day for more than six months. The unbraced group consisted of girls first seen for their spinal deformity, previously not treated.

Methods

Angle of trunk rotation (ATR) at three levels of the spine – upper thoracic (Th1–Th5), main thoracic (Th5–Th12), lumbar or thoracolumbar (Th12-L4) – was measured using a scoliometer [1]. The maximal angle was noted at each level and the sum of three levels was calculated. Posterior trunk symmetry index (POTSI) was measured using surface topography [2].

Results

Cobb angle was 35.0 ± 4.8 degrees in braced and 33.0 ± 4.9 degrees in un-braced patients (difference not significant, unpaired t-test). The age was 14.1 ± 1.6 years in Group 1 and 13.1 ± 1.9 years in Group 2 ($p = 0.046$, unpaired t-test). Risser sign value was less than three in twelve girls from Group 1 and in twenty-three girls from Group 2. Both groups presented similar curve patterns. The value of ATR in the main curvature was 8.4 ± 2.7 degrees in Group 1 and 11.4 ± 2.7 degrees in group 2 (difference highly significant, $p = 0.0003$, unpaired t-test). The value of the sum of ATR at three levels of the trunk was 12.8 ± 4.6 degrees in Group 1 and 16.5 ± 3.8 degrees in Group 2 (difference significant, $p = 0.0038$, unpaired t-test). The POTSI did not differ significantly between the groups ($p = 0.18$).

Conclusion

Girls with Cobb angle of 25 to 40 degrees, wearing the brace, revealed less clinical deformity than non-treated girls having similar radiological deformity. Evaluation of results of scoliosis treatment should consider clinical deformity and not be limited to radiological data.

References

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