

Oral presentation

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How much does the Dynamic Derotation Brace affect the surface deformity of children with idiopathic scoliosis?

Theodoros B Grivas*, Elias Vasiliadis, Georgios Koufopoulos, Georgios Triantafyllopoulos and Vasilios Mouzakis

Address: Orthopaedic Department, "Thriasio" General Hospital, G. Gennimata Av. 19600, Magoula, Attica, Greece

Email: Theodoros B Grivas* - grivastb@panafonet.gr

* Corresponding author

from 4th International Conference on Conservative Management of Spinal Deformities
Boston, MA, USA. 13–16 May 2007

Published: 12 October 2007

Scoliosis 2007, **2**(Suppl 1):S14 doi:10.1186/1748-7161-2-S1-S14

This abstract is available from: <http://www.scoliosisjournal.com/content/2/S1/S14>

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Objective

The effect of the Dynamic Derotation Brace (DDB) on angle of trunk inclination (ATI) in adolescent idiopathic scoliosis (AIS) children was studied.

Study design

A prospective clinical study for the assessment of the influence of the DDB, a modified Boston Brace [1] with antirotatory blades, on the surface deformity of conservatively treated scoliotics was performed.

Methods

Thirty-six scoliotic children (32 female, 4 male) with a mean age of 13.9 years (range 12–17 years), a mean Cobb angle of 28.2 degrees (range 19–38) and a mean angle of trunk inclination (ATI) of 7.8 degrees (range 4–17) were included in the study. The examined children were divided in three subgroups according to the curve type. All the children were treated with the DDB with antirotatory blades and they wore the brace for twenty-three hours per day for a minimum duration of two years. The ATI was assessed using the Puijts scoliometer [2] during the first examination and during the follow up, with the children out of the brace.

Results

For double curves, statistical analysis for ATI changes revealed that improvement in the thoracic region was not statistically significant ($p < 0.088$) but it was significant (p

< 0.01) in the thoracolumbar and in the lumbar region ($p < 0.013$). For right thoracic curves, ATI improvement was not significant for all the examined regions. Finally for thoracolumbar curves ATI improved significantly in the thoracolumbar ($p < 0.018$) and in lumbar region ($p < 0.027$), but not in the thoracic region ($p < 0.248$).

Conclusion

The above findings indicate that in curves with a compensatory component (e.g. primary thoracic with compensatory lumbar curve), a deforming rotatory force is present, blocked by the derotatory action of the blades of the DDB, and seems to be more active in the lumbar spine. However DDB beneficially affects the surface deformity of AIS children with all but right thoracic curves.

References

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