

Oral presentation

Stabilization of progressive thoracic adolescent idiopathic scoliosis using brace treatment and DoboMed physiotherapy

J Durmala*, T Kotwicki and J Piotrowski

Address: Department of Rehabilitation, University Hospital Medical Center of Silesia Ziolowa Str. 45/47 40-635 Katowice, Poland

Email: J Durmala* - jdurmala@sum.edu.pl

* Corresponding author

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Background

Conservative management of progressive idiopathic scoliosis, consisting of bracing and physiotherapy, aims to stabilize the curvature during rapid adolescent growth. Prospective study using pre-defined inclusion criteria is a method of objective verification of this treatment.

Goal

The aim of this study was to prospectively evaluate patients with progressive idiopathic scoliosis managed with Cheneau brace and DoboMed physiotherapy.

Materials and methods

Twenty-eight consecutive pre-menarchial girls aged 10 to 14 years (mean 12.6 ± 1.1 years) started a treatment plan for thoracic idiopathic scoliosis, having radiological proof of progression. Eighteen of them had an additional structural lumbar curvature. The Cobb angle revealed a magnitude of 21.0° to 40.0° (mean $30.8^\circ \pm 5.5^\circ$) in the thoracic curvature and 17.0° to 40.0° (mean $29.1^\circ \pm 8.2^\circ$) in the lumbar curvature. The Perdriolle angle of axial rotation of the apical vertebra was between 2.0° and 28.0° (mean $8.7^\circ \pm 5.6^\circ$) in the thoracic curvature and between 4.0° and 30.0° (mean $11.9^\circ \pm 8.8^\circ$) in the lumbar curvature.

A Cheneau brace was ordered to be worn full-time, accompanied by DoboMed daily physiotherapy. The initiation of treatment took place during a 2 week in-patient stay at the rehabilitation department in order to adjust the brace and teach the patient and the parents the technique

of exercises. The Cobb angle was measured once a year with an out-of-brace standing radiograph. The duration of therapy is now 30 to 68 months, mean 43 ± 9 months. Eleven patients completed therapy.

Results

The effective time of daily brace wearing was from 8 to 23 hours (mean 12.9 ± 5.0 hours). At the time of the final radiograph the thoracic Cobb angle was between 17.0° and 53.0° (mean $34.0^\circ \pm 9.2^\circ$), the lumbar Cobb angle was between 15.0° to 51.0° (mean $29.2^\circ \pm 10.4^\circ$). Three patients (11%) exceeded the limit of a 50° Cobb angle, and were considered to be surgical patients: two in the thoracic and one in the lumbar curvature. Stabilization of the Perdriolle angle of axial rotation was noted: 0.0° to 28.0° (mean $10.5^\circ \pm 7.0^\circ$) in the thoracic curvature and 2.0° to 33.0° (mean $13.4^\circ \pm 9.2^\circ$) in the lumbar curvature.

Conclusion

Stabilization of progressive thoracic scoliosis during the period of rapid adolescent growth was achieved in 89% of girls using the brace and specific physiotherapy.