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TREATMENT OF LUMBAR CURVES IN ADOLESCENT FEMALES AFFECTED BY IDIOPATHIC SCOLIOSIS WITH A PROGRESSIVE ACTION SHORT BRACE (PASB): ASSESSMENT OF RESULTS ACCORDING TO THE SRS COMMITTEE ON BRACING AND NONOPERATIVE MANAGEMENT STANDARDIZATION CRITERIA

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Background: The effectiveness of conservative treatment of scoliosis is controversial. Some studies suggest that brace is effective in stopping curve progression, whilst others did not report such an effect.

The purpose of the present study was to effectiveness of PASB in the correction of lumbar curves, in agreement with the SRS Committee on Bracing and Nonoperative Management Standardisation Criteria.

Methods: Forty adolescent females (mean age 12.95 ± 1.72 years) with lumbar curve and a pretreatment Risser score ranging from 0 to 2 have been enrolled. The minimum duration of follow-up was 24 months (mean: 41.75 ± 34.47 months). Antero-posterior radiographs were used to estimate the curve magnitude (CM) and the torsion of the apical vertebra (TA) at 5 time points: beginning of treatment (t1), one year after the beginning of treatment (t2), intermediate time between t1 and t4 (t3), end of weaning (t4), 2-year minimum follow-up from t4 (t5). Three situations were distinguished: curve correction, curve stabilisation and curve progression.

Results: CM mean value was 26.43 ± 2.77 SD at t1 and 13.80 ± 7.94 SD at t5. TA was 10.83 ± 3.74 SD at t1 and 7.88 ± 4.24 at t5. The variation between measures of Cobb and Perdriolle degrees at t1,2,3,4,5 and between CM t5-t1 and TA t5-t1 were significantly different.

Curve correction was accomplished in 82.5% of patients, whereas a curve stabilisation was obtained in 17.5% of patients.

Conclusion: The PASB, due to its peculiar biomechanical action on vertebral modelling, is highly effective in correcting lumbar curves.

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CORRELATION BETWEEN IN-BRACE RADIOGRAPHIC CORRECTION AND SHORT TIME BRACE RESULTS

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PURPOSE/BACKGROUND

In-brace X-ray is considered a reliable check of brace efficacy. The aim of this study was to correlate the in-brace correction with the short term results of treatment (6 months)

METHODS

Design: pre-post study

Population: 41 consecutive adolescent girls with idiopathic scoliosis who were prescribed a brace treatment (39 thoracic curves, $37 \pm 12^\circ$; 16 thoracolumbar, $38 \pm 13^\circ$; 12 lumbar, $31 \pm 8^\circ$. Risser 0-3).

In-brace X-ray and 6 months treatment out of brace X-ray results were correlated, according to curve localization. The in-brace/out-of-brace ratio was calculated, curves were grouped according to the Risser sign, the results ($<10^\circ$, $\geq 10^\circ$ out-of-brace), in-brace correction ($<10^\circ$, $\geq 10^\circ$), the magnitude ($<30^\circ$, $30^\circ-45^\circ$, $>45^\circ$).

Statistical analysis: Correlation Coefficient.

RESULTS

The in-brace/out-of-brace ratio varied according to localization of curve and Risser, achieving the best results for Thoracic curves (38-45%). The groups of Thoracolumbar and Lumbar had higher variability (17-65% and 17-40%).

The correlation coefficient between in-brace correction and out of brace results was statistically significant: 0.85 for Thoracic curves, 0.64 thoracolumbar, 0.72 lumbar. Risser groups: 0.65-0.98 Thoracic, 0.78-0.90 Thoracolumbar, 0.94-0.98 Lumbar.

For Results groups, the correlation was better for High results in lumbar and Low results for thoracolumbar, no differences for thoracic.

Low in-brace correction had a low correlation coefficient for thoracic and lumbar curves.

No differences for Magnitude.

CONCLUSION

The correction after 6 months of brace are 17-47% of the in-brace correction. The correlation between in-brace correction and short time results of brace is significant, range 0.64-0.98. The in-brace correction seems able to predict the short time results of treatment.