

Oral presentation

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In-brace corrections in patients with kyphosis using the kyphologic® brace

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Background

Little is known about the in-brace correction effects of braces used for the treatment of kyphosis. While Bradford et al. have found their attempts effective, treating Scheuermann's kyphosis with Milwaukee braces, they did not report on in-brace corrections. According to White and Panjabi, it seems the appropriate approach is to try to correct a curvature of $> 50^\circ$ with the help of distraction forces; however, patient comfort is largely reduced in the Milwaukee brace. Therefore, in Germany, braces generally prescribed for kyphosis treatment are using transverse correction forces only. Our efforts to reduce brace material have resulted in a special bracing design called Kyphologic® brace.

Aim of this presentation

The objective of this study is to examine possible in-brace corrections which have been achieved with the kyphologic® brace.

Materials and methods

56 adolescents with the diagnosis of a thoracic Scheuermann's kyphosis or a thoracic idiopathic kyphosis (22 girls and 34 boys) and an average age of 14 years (12-17 years) were treated with the Kyphologic® brace between 5/07 and 10/08 (Figure 1). The average Stagnara angle was 55.6° (43-80). In-brace correction was recorded and compared to the initial angle with the help of the t-test.

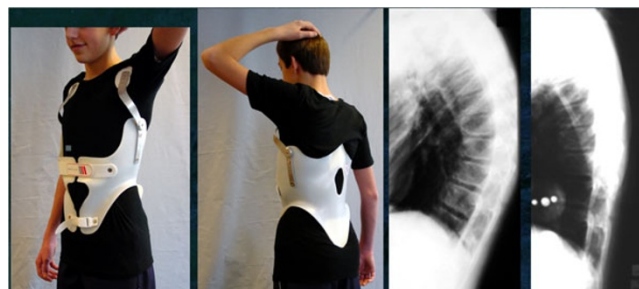


Figure 1

Results

The average Stagnara angle in the brace was 39° . The average in-brace correction was 16.5° (1-40°). The average in-brace correction in percentage of the initial value was 36%. The differences were significant in the t-test ($t = 5.31$, $p < 0,001$). There was no correlation between the in-brace correction in percentage and the age of the patient, but there was a high significant correlation between in-brace correction in percentage and the initial Stagnara angle.

Discussion

If we assume that outcome of brace treatment positively correlates with in-brace correction, the treatment should start before the curvature angle exceeds 55° . In scoliosis

bracing, an average in-brace correction of $> 15^\circ$ predicts an end result correction. With this Kyphologic® brace, we also achieved $> 15^\circ$ in kyphosis treatment. Therefore, we predict a favorable outcome using this brace type when compliance can be achieved.

Conclusion

An average in-brace correction of $> 15^\circ$ as achieved with the help of the Kyphologic® brace seems to predict a favorable outcome.

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