

ORAL PRESENTATION

Open Access

Brace efficacy: meta-analysis of studies conducted according to the SRS criteria for brace studies

F Zaina^{1*}, S Donzelli², M Lusini², S Negrini^{3,4}

From 9th International Conference on Conservative Management of Spinal Deformities - SOSORT 2012 Annual Meeting
Milan, Italy. 10-12 May 2012

Background

Bracing efficacy is questioned, since data are very variable, and comparisons are difficult, due to the lack of standard research protocols. The SRS criteria for bracing studies (SRS-C) aimed at comparing different braces, while the SOSORT Management criteria aimed at verifying the quality of brace treatment.

Aim

To compare the results of studies performed according to SRS-C, and perform a meta-analysis.

Methods

Design: systematic review and meta-analysis. Inclusion criteria: studies respecting SRS criteria for bracing studies. Protocol: an electronic search was performed in Medline to retrieve all the articles respecting the SRS-C. Data have been pooled, and subgroups made for comparisons. Odds ratios were calculated.

Results

5 studies have been included (4 retrospective, one prospective), with a total of 416 patients, Cobb Angle range 25-40°, Risser 0-2, more than 10 years old, and less than 1 year post menarche at baseline. Pooling data, we had 40% of patients worsened >36° Cobb, including 27% with curves over 45°; 30% of patients were fused. Making subgroup analysis, we compared rigid braces managed according to SOSORT Criteria (SOSORT-C), with rigid braces managed without: 2% worsened (OR: 95.21; CI 93.75-96.66), without any patients exceeding 45°, or fused, versus 67% worsened (44%>45° Cobb), and 55% fused. Comparing rigid braces altogether with SpineCor, we had similar efficacy, 38% vs 42% worsened (24% vs 31% >45°), 30% vs

29% fused. We had better results for papers respecting SOSORT-C, intermediate for SpineCor, and the worst for the other rigid braces papers with significant OR.

Conclusion

Pooling data, from studies respecting the SRS-C, showed rate of efficacy that can alter favorably the natural history of AIS, 40% of worsening in high risk patients versus 60-68% described in literature. The SOSORT-C appears fundamental to obtain good results: when they are fulfilled, progression rate is close to zero; when they are not, the efficacy is significantly lower than the one of a soft brace (SpineCor). Bracing is not only a matter of technical efficacy, but also a matter of management. Data from this meta-analysis support the use of braces to change scoliosis natural history, and reduce the rate of surgery.

Author details

¹ISICO (Italian Scientific Spine Institute), Milan, Italy. ²Siena University, Siena, Italy. ³University of Brescia, Brescia, Italy. ⁴IRCCS Don Gnocchi, Milan, Italy.

Published: 3 June 2013

References

1. Richards BS, Bernstein RM, D'Amato CR, Thompson GH: **Standardization of criteria for adolescent idiopathic scoliosis brace studies: SRS Committee on Bracing and Nonoperative Management.** *Spine* 2005, **30**(18):2068-2075, discussion 2076-2067.
2. Negrini S, Grivas TB, Kotwicki T, Rigo M, Zaina F: **Guidelines on "Standards of management of idiopathic scoliosis with corrective braces in everyday clinics and in clinical research": SOSORT Consensus 2008.** *Scoliosis* 2009, **4**(1):2.
3. Lonstein JE, Carlson JM: **The prediction of curve progression in untreated idiopathic scoliosis during growth.** *J Bone Joint Surg Am* 1984, **66**(7):1061-1071.

doi:10.1186/1748-7161-8-S1-O50

Cite this article as: Zaina et al.: Brace efficacy: meta-analysis of studies conducted according to the SRS criteria for brace studies. *Scoliosis* 2013 **8**(Suppl 1):O50.

¹ISICO (Italian Scientific Spine Institute), Milan, Italy
Full list of author information is available at the end of the article