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Brace treatment is effective in idiopathic scoliosis over 45°: an observational prospective cohort controlled study.

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Abstract

BACKGROUND CONTEXT: Recently positive results in bracing patients with idiopathic scoliosis (IS) above 45° that refused surgery have been presented in a retrospective study. Obviously, this can give only an efficacy analysis, since there is no control group, nor it is possible to know failures due to drop out.

PURPOSE: Present the prospective results of bracing patients affected by IS above 45° still growing.

STUDY DESIGN/SETTING: Prospective study including all IS patients with 45° or more, Risser 0-4, who had their first evaluation in our Institute, an outpatients clinic specialized in scoliosis evaluation and conservative treatment, from March 1st, 2003 to December 21st, 2010 and utterly deny any surgical intervention.

PATIENT SAMPLE: Out of 59 patients, we excluded 2 still in treatment and 57 (11 males) were included. At start: 15 years 3 months ± 22 months of age, 52.5° Cobb (range 45-93°), Risser 2 (0-4). Thirty-nine accepted a full-time brace treatment (BG) to try avoiding surgery, 18 refused any treatment and served as controls (CG).

OUTCOME MEASURES: Physiological measures. Radiographic and clinical data.

METHODS: Treatment. 1 year full time Sforzesco brace (23 hours/day), or Risser cast (8-12 months) and gradual weaning after Risser 3; all patients performed exercises; SOSORT management criteria were respected. Analyses. Efficacy (EA) in patients who completed treatment/observation (34 in BG; 10 in CG) and intent-to-treat (ITT) with worst case analysis in the whole population. Relative Risk (RR) and 95% Interval Confidence (IC95) have been computed. Funding and Conflict of Interest: no.

RESULTS: EA: failures were 23.5% in BG and 100% in CG. ITT: failures 20.5% in BG and 55.6% in CG. RRs of failure in CG were 4.3 (IC95: 3.6-4.9) in EA and 2.7 (IC95 2.0-3.5) in ITT (P<0.05). 53.8% of patients improved: RRs of improvement in BG were 1.6 (IC95 1.46-1.9) in EA and 1.9 (IC95 1.6-2.2) in ITT (P<0.05). Patients joining treatment achieved a 10.4±10.7° Cobb improvement, an ATR reduction of 4.2±4.3°, and an aesthetic improvement of 2.8±1.9 out of 12 points (TRACE). At the end, in BG 24 patients were below 45°, and 6 below 35°.

CONCLUSIONS: Through this study we shall conclude that the conservative brace plus exercises treatment (if correctly performed and managed) is a suitable alternative for those patients that

reject any surgical intervention for idiopathic scoliosis above 45°. But we could also conclude that a good brace treatment should be considered as the first choice to try avoiding fusion, due to the high sanitary and social costs of surgery.

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KEYWORDS: Adolescent Idiopathic Scoliosis, Bracing, Rehabilitation

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