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Topic	**Bracing for Scoliosis**
Title	Efficacy of bracing in worst cases (over 45°): end-growth results of a retrospective case series.
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Abstract	**Objectives**: verifying the efficacy of bracing for adolescent idiopathic scoliosis (AIS) in worst cases (over 45°) refusing surgery. **Background**: 45°-50° curves are considered surgical, but not all patients want to face surgery and a treatment should be warranted to try help them avoiding fusion; the efficacy of bracing in this curves is generally considered scanty, but our experience seems to drive to different conclusions, that need verification. **Methods. Study Design**: retrospective study. Population: all AIS patients with at least one 45° degree curve at first evaluation that reached the end of treatment since our database start in 2003; we had 14 females and 2 males; 6 had a previous, failed brace treatment; at start: age 14.1±1.7, Cobb degrees 49.4±4.3 (range 45-58°). **Methods**: full time treatment (23 or 24 hours per day) for one year with Risser cast (11) or Sforzesco brace (5) respecting SOSORT criteria, plus specific exercises. Outcome criteria: SRS (unchanged; worsened over 6°; over 45° at the end of treatment; surgically treated; 2 years follow-up); clinical (ATR, hump, Aesthetic Index, plumbline distances); radiographic (Cobb degrees); and ISICO (optimum; minimum). Statistics: ANOVA and chi-test. **Results:** reported compliance in the 4.5±1.6 treatment years was 90.5±15.5%. At the end 5 patients (31%) were still over 45° (range 32°-50°), no one was fused and this remained true at the 2 years follow-up for the 50% that reached it. Improvements have been found in 69% and 56% of worst and average curves, and in 56% and 80% of Thoracic and Lumbar curves respectively. We found highly statistically significant reductions of maximal (-8.6°), average (-4.8°), Thoracic (-6.0°) and Lumbar (-10.2°) curves. Statistically significant improvements have been found for Aesthetic Index and Thoracic ATR, with a decrease of plumbline distances. According to ISICO criteria 75% of patients had minimum and 63% optimal results. **Conclusion:** Curves over 45° represent a challenge for physicians and patients that can be faced with high efficacy braces, good methodology (SOSORT criteria), dedication and compliance (high motivation that can come from decision/hope to avoid surgery). In these optimal situations, according to this retrospective study, surgery can be avoided in some cases.
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