CO0265
Weaning results of a consecutive series of 125 adolescent idiopathic scoliosis treated by the new Lyon Brace (ART brace)
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Objective ART is the acronym for Asymmetry, Rigid, Torsion. The realization of this brace is based on new concepts (circled helicoid, global detorsion, Soft Contact, Mayonnaise tube effect, axilla baby lift, wrench & bolt …). The excellent in-brace correction has been proved on a consecutive series of 141 AIS selected according to the SRS criteria in a prospective database. Results at six months and a year were compared with those of the former Lyon brace and confirm that these good results remain constant. It is now possible to study the Cobb angle results of the first 125 AIS reaching the end of treatment. Are the first results at 1 year confirmed?

Material/patients and methods This is a prospective controlled cohort observational study based on ongoing database including 544 patients with AIS treated with ART brace from May 2013 to November 2015. Only primary curves were selected and lumbar scoliosis (Lenke 5) are excluded as treated with the short GTB brace. The weaning protocol is identical to that of the former Lyon brace and compliant with the SOSORT guidelines.

Results The dropout rate calculated for the first 125 patients is 14%. The mean age is 14.44 years (SD = 1.32, range: 10–17). One hundred and six patients are female (85%). The average initial Cobb angle is 26.84° (SD = 7.15, range: 18–48°). The average in-brace Cobb angle is 6.19° (SD = 8.27, range: [−18] − 34°). The average in-brace correction (percent) is 79.4% (SD = 26.6, range: 28–150%). The average Weaning Cobb angle is 15.89° (SD = 9.40, range: [−4] − 44°). The average Weaning correction (percent) is 53.0% (SD = 25.6, range: 4–150%).

Discussion - conclusion In our experience, the weaning results are very close to those 2 years after weaning and can be considered as significant. Patients are a little older (14.4 vs 13.4) and with lower initial angulation than in the general statistics (26.84 vs 29.61). The in-brace reduction is greater (79.4% vs 69.4%) which explains the outstanding weaning correction rate (50% vs 25% for the old Lyon brace).