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General Information

Abstract ID:	847
Abstract Title:	Adults with Scoliosis, Curve Progression is Faster after Age 50: Results from a Prospective Collection of Radiographical Data.

Author Information

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Abstract Information

Session Types:	Podium or E-Poster
Proposal Format:	Clinical Study - Prognostic
Abstract Category:	Adult Spinal Deformity
Abstract Title:	Adults with Scoliosis, Curve Progression is Faster after Age 50: Results from a Prospective Collection of Radiographical Data.
Summary:	The understanding of the pattern of progression in adult scoliosis will improve the effectiveness of preventative interventions. We found in 767 participants (48±17° Cobb) that curve progression can be predicted by age. Before age 50, the expected progression will be 5° every 15 years, while in subjects older than 50 the 5° progression will happen in 10 years. In adults treated during growth with a primary thoracic curve, Cobb progression is increased.
Hypothesis:	Baseline characteristics and historical data allow predicting the progression of scoliosis curves in adult patients.
Study Design:	Retrospective cohort study
Introduction:	Following up patients with spine deformities for all life is costly, and a better knowledge of the natural history would provide a better selection of subjects to be followed up in a shorter period, thus optimizing costs. We aimed to analyze the factors predicting the possible curve progression in a large cohort of adults followed up for a 5-year minimum period.
Methods:	Inclusion criteria: age >20, idiopathic scoliosis curves > 10° Cobb, 2 or more previous x-rays over a minimum 5-year period, no spine surgery. Outcome: Primary curve progression evaluated in consecutive x-rays (2 at minimum) during a 5-year minimum follow up. Prognostic factors: Baseline characteristics, sagittal parameters and historical data including bone and joint diseases, osteoporosis and early menopause. Age at x-ray as time variable. Statistics: mixed-effect multivariate growth model for two levels longitudinal data structure, with cubic splines and age knots.
Results:	We included 767 participants (88.8% females, entry date mean age 34.0±12.4, while at the last x-ray mean age 47.8±13.0. Start Cobb 41.2±15.3, end Cobb 48±17°). In the sample, 65% had 2 x-rays,19% had 3, 16% 4 or more. The 46% of the sample had a follow-up time between 5 to 10 years. Before age 50, the expected progression will be 5° every 15 years, while in subjects older than 50 the 5° progression will happen in 10 years. In adults treated during growth with a thoracic main curve, Cobb progression is increased by 0.34 when age is 35 to 50 (CI95% 0.30-0.40) and by 0.40 when age is 50 to 65 (CI95% 0.3-0.5).
Conclusion:	The rate of progression increases after age 50, and a shorter follow up should be recommended. Larger dataset, with longer follow-up periods, are needed to provide a better understanding of scoliosis prognosis in adults.
Take Home Message:	The rate of progression increases after age 50 when shorter follow up should be recommended. We need larger dataset and longer follow-up to understand scoliosis prognosis in adults better.

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What is the level of Evidence?:	Level III
What is the Authorship?:	Single-Center
What is the enrollment time period of the study?:	40 years
How many patients were eligible for inclusion from all study sites during this time frame?:	860
How many patients were enrolled from all study sites?:	767
Were the patients enrolled consecutively?:	Yes
What was the minimum time period of follow-up?:	5 years
How many patients reached the minimum follow-up time?:	767
Was this study funded by a SRS Grant?:	No
Uploaded Files:	
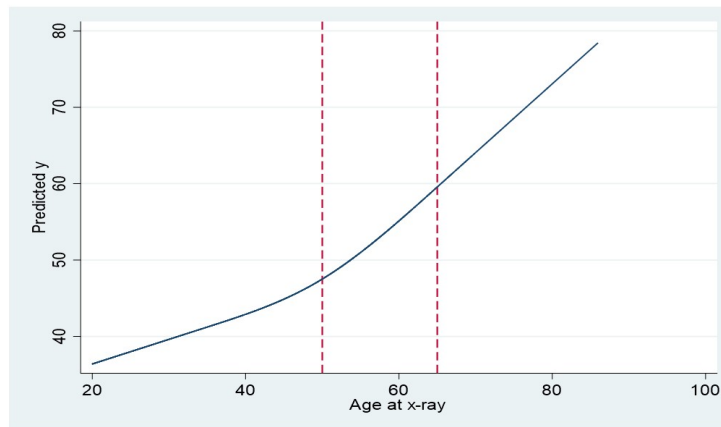
Figure 1: Plot of the average predicted values of the major Cobb angle at the following age intervals: 35, 50 and 65 obtained with the linear spline model.