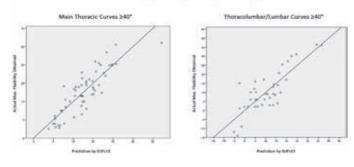Plot Diagram Comparing Actual Maximum Flexibility of the Patients to the Predicted Flexibility by Standing and Supine Radiographs and the SUFLEX

27. Brace Wearing Time is the Strongest Predictor of Final Reults: A Regression Model in 1457 High Risk Consecutive Adolescents With Idiopathic Scoliosis

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Summary

A personalised conservative approach (PCA) to Adolescents with Idiopathic Scoliosis (AIS) is based on different treatment protocols according to risk groups (11-20, 21-30, 31-40, 41-45). We developed a model to predict PCA end results from baseline clinical data, risk groups and brace wearing time. Time of brace wearing is the strongest predictor of final results whether end<50, end<30 or no-progression outcomes are considered. Risk groups on which PCA is based are also good predictors.

Hypothesis

It is possible to develop a model to predict end results of a personalised conservative approach (PCA) to Adolescents with Idiopathic Scoliosis (AIS) from baseline clinical data, risk groups and treatment protocols

Design

Secondary analysis with regression modeling of the data coming from a retrospective observational study nested in a prospective database including all outpatients of an Institute with 26 Centres

Introduction

Current Guidelines propose PCA, but there are no large studies to check final results, and predict which patients will respond better.

Methods

Inclusion criteria: AIS, 11-45°, Risser 0-2, age 10-16, first consultation, no previous bracing, reached end of observation (Risser 3, medical prescription). Treatments followed a personalised conservative approach (PCA) following the step-by-step theory (Negrini 2018): intensity increases with estimated risk factors, from observation to PSSE to soft, rigid and very rigid bracing. We considered the SOSORT-SRS Consensus outcomes: end Cobb angle <50° and <30° and no-progression. A backward selection regression modelling weas used to assess the effect of 7 covariates on the main outcomes: age, BMI, ATR, TRACE (Trunk Aesthetic Clinical Evaluation) score, Risser and Cobb angle at baseline; referred brace wear (RBW) and risk groups according to which different PCA are provided (11-20; 21-30; 31-40 and 41-45)

Results

We had 1457 patients, 82.6% females, age 12.11+-1.05. End<50° was predicted by BMI and RBW (0.21 and 0.10 probability respectively) while age, Cobb and ATR were statistically significant but weighting <0.005. End30° is predicted by RBW (0.37), and Cobb (0.03), while age counts <0.0005. No-progression was predicted by RBW (0.33); Cobb, TRACE and ATR counted <0.02, and age <0.0002. The models Between 0.31 and 0.37 of the final results. Considering the 4 risk groups, end<30° and end<50° probability decreases with the groups (R2=0.3 and 0.04 respectively)

Conclusion

Time of brace wearing is the strongest predictor of final results whether a <50, <30 or stability outcomes are considered. Risk groups on which PCA is based are also good predictors

Groups	N	Results		Treatments performed					
		Improved	Progressed	Observation	PSSE	Brace + PSSE	Soft	Rigid	Very rigid
Total	1458	32,5%	18,8%	1,3%	25,0%	73,7%	9,6%	46,4%	44,0%
11-20°	522	13,6%	27,8%	3,1%	60,5%	36,4% *	32,4%	62,2%	5,4% *
21-30°	539	36,7%	14,3%	0,4%	10,9%	88,7% *	14,0%	65,4%	20,6% *
31-40°	315	50,8%	12,4%	0,3%	0,7%	99,0% #	0,6%	26,8%	72,6% *
41-45°	82	56,1%	15,9%	0,0%	0,0%	100,0% #	0,0%	3,8%	96,2% *

	N	Time	Below 30°	Above 50°						
Total	1458	Start	69,3%	0,0%						
		End	78,3%	1,6%	1,3%	25,0%	73,7%	14,0%	65,4%	20,6%

N=number; PCA=Personalised Conservative Approach; PSSE=Physiotherapic Scoliosis Specific Exercises
Statistically significant difference: * from all other groups; # from groups 11-20° and 21-30°

28. SRS Survey: Brace Management in Adolescent Idiopathic Scoliosis

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Summary

Brace utilization by SRS members caring for AIS patients is nearly universal, but post-prescription management is highly variable. Most members use SRS criteria for brace initiation but there is little consensus in other aspects of bracing utilization. The SRS may consider studying, identifying, and publishing other brace management best practices and criteria. This, in turn, may decrease practice variability and improve patient outcomes.

Hypothesis

Brace management for AIS is quite variable within the SRS membership.

Design

Online survey of entire SRS membership

Introduction

While the SRS has established criteria for brace initiation in AIS, there are no recommendations with respect to other management issues: when and how to discontinue bracing, monitoring, prescription hours, assessment of adequacy, and how to assess skeletal maturity. As the BrAIST study appeared to reinforce the utility of bracing, the SRS Non-Operative Management Committee decided to evaluate the consensus, or lack thereof, in AIS brace management practices.

Methods

1,200 SRS members were sent an online survey in 2017: The survey included 21 items concerning demographics, bracing