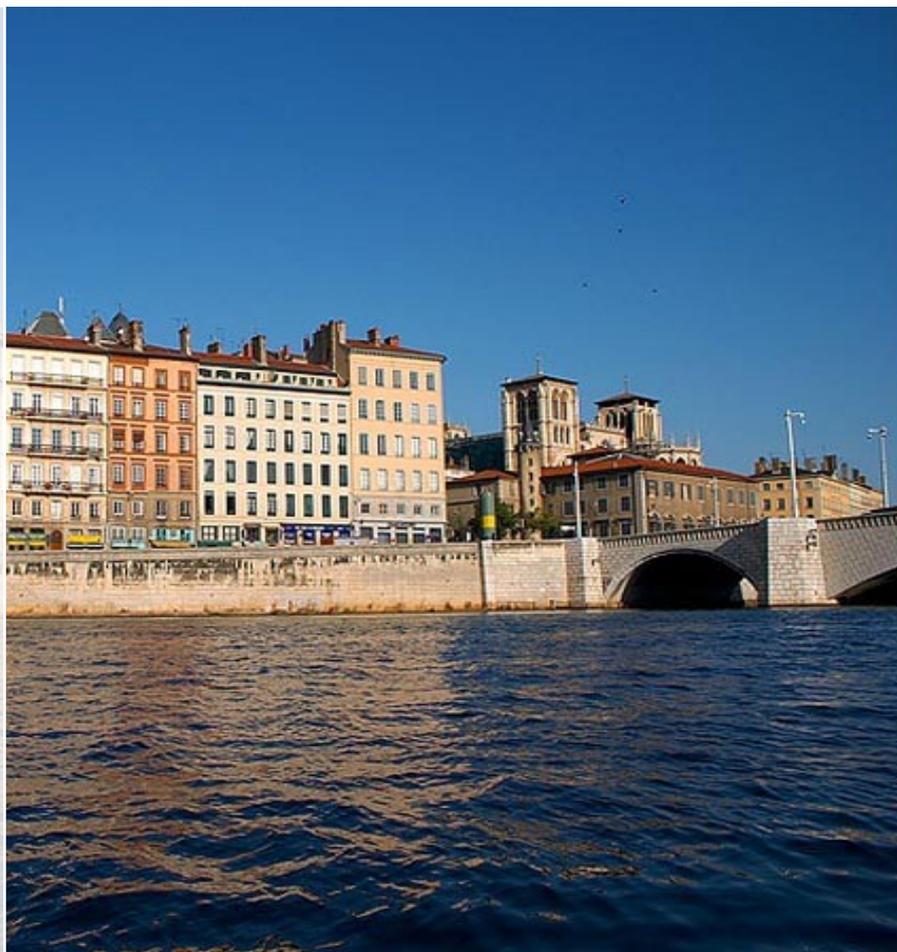


6th International Conference on Conservative
Management of Spinal Deformities

May 21-23 Lyon - France

2009



Presented by SOSORT

(Society on Scoliosis Orthopaedic and Rehabilitation Treatment)

ABSTRACTS

Organised by SIRER

International Society on Research and Study of the Spine

LY001 2008-05-30 14:14:47

 Topic **Bracing for Kyphosis**

Title Does Bracing Alter the Natural History of Adolescent Idiopathic Scoliosis?

Authors Ogilvie James, Nelson Lesa, Chettier Rakesh, Ward Kenneth.

Abstract
Background

Orthotic treatment of children with AIS is a generally accepted treatment option. Failure of bracing to halt curve progression has been reported in 20% or more of patients and it is known that some curves in children with AIS will not progress even if untreated. Success and failure rates of brace treatment vary considerably.

Purpose

We reviewed the response to brace treatment in patients who were also analyzed with a DNA-based adolescent idiopathic scoliosis progression test (AIS-PT) and compared this with the natural history of adolescent idiopathic scoliosis without treatment. Our purpose was to document the influence of orthotic care on the outcome at skeletal maturity.

Methods

Medical records and x-rays were reviewed and DNA was collected with a saliva sample in two cohorts of Caucasian female AIS patients. A risk of progression score was calculated using 53 genetic markers with utility for calculating the risk of AIS curve progression from $<25^\circ$ to $>40^\circ$ before skeletal maturity or $>50^\circ$ at maturity (1-200). Group A (2442 females) had no brace treatment and their outcome at maturity or surgery was known. Group B (308 females) were brace compliant for more than one year and their curve severity at maturity or surgery was known.

Results

There was little statistical difference in the curves representing risk of progression versus curve severity when the two groups were compared. Graph 1

Conclusions

In this retrospective study of US Caucasian females, there was no statistically significant alteration in the natural history of adolescent idiopathic scoliosis. At best, there was only a modest brace effect. Prospective trials with genotype homogeneity are needed to validate current assumptions on the efficacy of orthotic types and treatment regimens when bracing adolescent idiopathic scoliosis.



JcDM

1 – How to explain that monozygotic twins with same DNA, same environment, and same treatment do not have same evolutivity?

Your two questions are very important. Monozygotic twins are a "birth defect" occurring in the first two weeks of gestation. Depending on the age of the embryo at cleavage, allocation of blastomeres, availability of cytoplasmic components, reorientation of one twins' three major axes and subsequent timing differences in establishment of the other two axes and vagaries of placental circulation, when considering midline disorders such as scoliosis, monozygotic twins are an uncertain

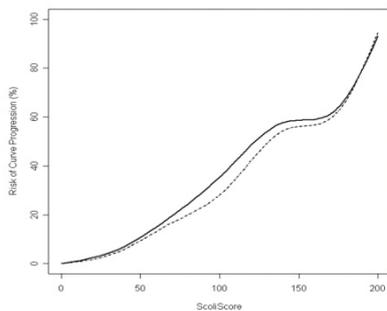
research model. AIS is a disorder with strong genetic determinants including the ability to predict curve progression which occurs outside of the intra-uterine environment.

2 - If the rigid brace do not seem to modify the natural history of the idiopathic scoliosis, why to have given up the plaster casts which make it possible to improve the results (11% of progression higher than 5°).

Our study involves subjects from major spine centers across the US. The routines used in the US may be related to the modest ability to influence the natural history of AIS. The most important point of the paper is that clinical research on AIS bracing must be properly designed. Small series, anecdotal reports or study cohorts that contain patients with different risks of curve progression do not meet the threshold for scientific inquiry. It is clear that brace methods vary widely and to document the efficacy of any particular method requires genotype homogeneity in the study cohort. SOSORT has the potential to educate the rest of the world about successful bracing in AIS and well designed studies will advance that process

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Black = 308 Caucasian female braced
Dotted = 2442 Caucasian Females never braced



Graph 1