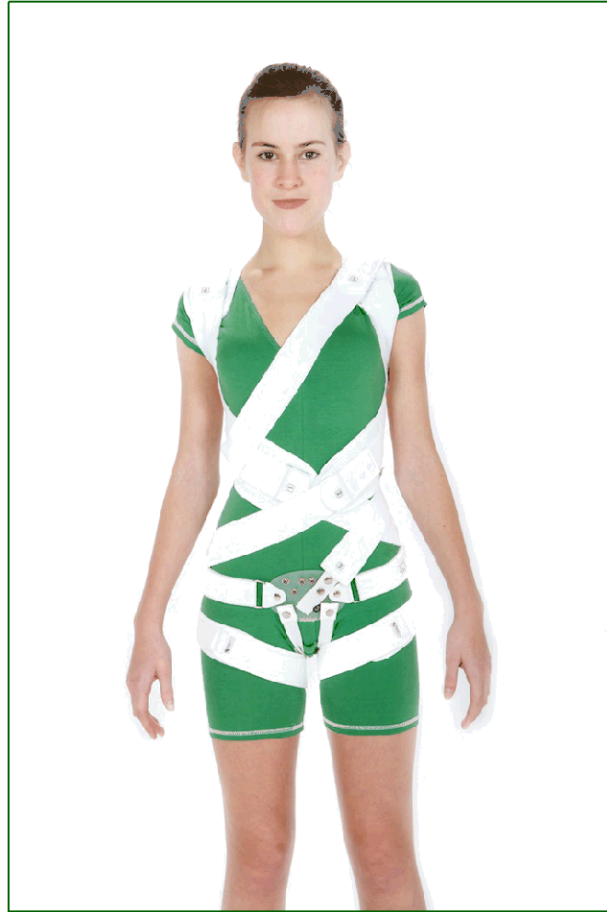


SpineCor

TREATMENT RESULTS



SPINECOR
MOVEMENT IS LIFE



SPINECOR PAEDIATRIC TREATMENT RESULTS

ORAL PRESENTATION

Open Access

A prospective interventional cohort study of 175 patients treated by the SpineCor orthosis, following the Scoliosis Research Society Criteria

C Coillard*, A Circo, CH Rivard

From 9th International Conference on Conservative Management of Spinal Deformities - SOSORT 2012 Annual Meeting
 Milan, Italy. 10-12 May 2012

Background

The mainstay of the conservative treatment still remains the orthosis, which was demonstrated to provide a reduction of curve progression, possibly a decrease in the need for surgery, and sometimes a correction of the existing deformity. The effectiveness of the SpineCor orthosis compared with the natural history of the disease has already been shown for milder and moderate curves[1].

Aim

To provide confirmation on the demonstrated effectiveness of the Dynamic SpineCor orthosis for adolescent idiopathic scoliosis, following the standardized criteria proposed by the SRS Committee on Bracing and Non-operative Management[2], and to confirm the stability of the results two years after the end of the treatment.

Method

From 1993 to 2011, 390 patients treated using the SpineCor orthosis respected the criteria for inclusion recommended by the SRS committee. 198 have a definitive outcome, and 175 have at least 2 years of follow-up.

Assessment of brace effectiveness included; 1) percentage of patients who have 5 degree or less curve progression, and the percentage of patients who have 6 degree or more progression at skeletal maturity, 2) percentage of patients who have had surgery recommended/undergone before skeletal maturity, 3) percentage of patients with curves exceeding 45 degree at maturity (end of treatment) and 4) 2-years follow-up beyond maturity to determine

the percentage of patients who subsequently underwent surgery.

Results

At two years post skeletal maturity, successful treatment (correction >5 degree or stabilization ± 5 degree) was achieved in 100 patients of the 175 patients (57.2%) from the time of the fitting of the SpineCor orthosis to the 2 years follow-up point. 41 immature patients (23.4 %) required surgical fusion.(34 while receiving treatment and 5 in the follow-up period).

Conclusions

The SpineCor orthosis is effective for the treatment of adolescent idiopathic scoliosis. Positive outcomes are maintained after the weaning of the orthosis, since 86.1% of the patients stabilized or corrected their Cobb angle. Moreover, out of the 86.1%, 11.7 % of the patients still had correction of their Cobb angle 2 years after the end of the treatment.

Published: 3 June 2013

POSTER PRESENTATION
Open Access

First experiences in the treatment of juveniles and idiopathic scoliosis with SpineCor braces

A Sarchioto

From 9th International Conference on Conservative Management of Spinal Deformities - SOSORT 2012 Annual Meeting
 Milan, Italy. 10-12 May 2012

Background

The standardized treatment of juvenile, and adolescent, idiopathic scoliosis is accepted everywhere: physiotherapy for curves until 15-20° Cobb, rigid brace between 20 and 30-35° Cobb, cast between 30 and 40-45° Cobb and surgery over 45° Cobb.

Aim

The aim of this work is to verify the efficacy and effectiveness of the SpineCor dynamic brace, in juvenile and adolescent idiopathic scoliosis with curves between 20 and 50° Cobb.

Methods

All patients (range of age 5 to 15 years) were treated with a SpineCor dynamic brace. All braces were ordered, fitted and used, following the standard canons of the appropriate procedure. A photographic control was carried out, just after fitting, a clinical control in a month, a clinical and photographic in three months, and a clinical, photographic and radiographic in six months.

Results

Over 90% of patients had a very important change in their posture and cosmetic appearance. None of them left the treatment.

Conclusion

The SpineCor dynamic brace used is efficient and effective. Because it does not limit any movement, and allows practicing all sports, (but swimming), and dance, and since it is virtually invisible under clothing, no patient has complained of the treatment. Both patients and parents were

satisfied. This good result allows, and encourages, us to continue in using this brace.

Published: 3 June 2013

References

1. Collard C, Circo A, Rivard CH: A new concept for the non-invasive treatment of Adolescent Idiopathic Scoliosis: the Corrective Movement principle integrated in the SpineCor System. *Disabil Rehabil Assist Technol* 2008, **3**(3):112-119.
2. Vachon V, C C, Zabjek K, Rhalmi S, Rivard C-H: Analyse de survie d'une cohorte de 365 patients scoliotiques traités par le corset SpineCor À l'Hôpital Sainte-Justine; 2006.

doi:10.1186/1748-7161-8-S1-P11

Cite this article as: Sarchioto: First experiences in the treatment of juveniles and idiopathic scoliosis with SpineCor braces. *Scoliosis* 2013 **8**(Suppl 1):P11.

POSTER PRESENTATION
Open Access

Difference between spinecor brace and rigid brace during treatment

Ö Ersen*, B Bilekli, S Bilgic, E Oguz, A Sehirlioglu

From 9th International Conference on Conservative Management of Spinal Deformities - SOSORT 2012 Annual Meeting
 Milan, Italy. 10-12 May 2012

Background

Brace treatment in idiopathic scoliosis is the only efficacious method of non operative treatment. The effectiveness of dynamic SpineCor brace with corrective movement principle has been shown, but differences between rigid braces and SpineCor brace is still unclear.

Aim

The aim of this study is to evaluate differences between rigid brace and SpineCor brace in terms of curve progression, spinal height increase, and SRS-22 questionnaire during treatment.

Methods

A total of 76 consecutive adolescent idiopathic scoliosis patients who were treated with brace were included in this study. 45 patients were treated with SpineCor brace, 31 patients were treated with rigid braces. After detailing braces and their costs, choice was made by patients' family. Patient's height, T1-Coccyx distance, gibbosity, and Cobb angles were documented at the beginning of the treatment and last control. At last visit SRS-22 questionnaire applied to the patients to evaluate clinical effect of braces.

Results

Average age of SpineCor group was 12.8 ± 1.5 and average follow up period was 25 ± 10.6 months. In rigid brace, the group average age was 12.2 ± 1.3 and average follow up period was 23 ± 6.7 months. There were no differences between groups according to age, gender, height, T1-Cx distance, Cobb angles, gibbosity before brace treatment initiated. In both groups, height and T1-Cx distance increased and there were no difference. Cobb angle

decreased 1.5° in SpineCor group and increased 1.1° in rigid brace group ($p=0.137$). Gibbosity decreased 0.6° in SpineCor group and increased 0.3° in rigid brace group ($p=0.086$). According to SRS-22 questionnaire, SpineCor brace patients' pain, self image and activity/function scores were statistically better than rigid brace patients' scores, while mental health and satisfaction from treatment scores were similar.

Conclusions

Although SpineCor brace and rigid braces have similar effects on curve correction, height and spinal height, the real benefits of SpineCor brace is less pain, less anxiety about self image and more activity, and function.

Published: 3 June 2013

References

1. Coillard C, Circo AB, Rivard CH: SpineCor treatment for Juvenile Idiopathic Scoliosis: SOSORT award 2010 winner. *Scoliosis* 2010, 5:25.
2. Alanay A, Cil A, Berk H, Acaroglu RE, Yazici M, Alkali O, Kosay C, Genc Y, Surat A: Reliability and validity of adapted Turkish Version of Scoliosis Research Society-22 (SRS-22) questionnaire. *Spine* 2005, 30(21):2464-2468.

doi:10.1186/1748-7161-8-S1-P8

Cite this article as: Ersen et al.: Difference between spinecor brace and rigid brace during treatment. *Scoliosis* 2013 8(Suppl 1):P8.

Received: 2013.02.11
 Accepted: 2013.02.28
 Published: 2013.03.26

Clinical assessment of the efficacy of SpineCor brace in the correction of postural deformities in the course of idiopathic scoliosis

Barbara Plewka¹, Marcin Sibiński², Marek Synder², Dariusz Witoński³,
 Katarzyna Kołodziejczyk-Klimek¹, Michał Plewka⁴

¹ Pediatric Rehabilitation Department, Voivodship Centre for Orthopedics and Rehabilitation of Motor Organs, Łódź, Poland

² Clinic of Orthopedics and Pediatric Orthopedics, Medical University of Łódź, Łódź, Poland

³ Clinical Department of Reconstruction and Arthroscopic Knee Surgery, Medical University of Łódź, Łódź, Poland

⁴ Faculty and Clinic of Cardiology, Medical University of Łódź, Łódź, Poland

Summary

Background:

The objective of the study was to perform a clinical, comparative assessment of the degree of postural deformities before and after the treatment of idiopathic scoliosis in patients treated with SpineCor brace compared to the control group.

Material/Methods:

A group of 90 children with idiopathic scoliosis (including 74 girls) at the average age of 12.2 was subject to prospective observation. Average pre-treatment Cobb angle was 24.9° in the thoracic spine and 25.8° in the lumbar spine. The group actively treated with the SpineCor brace consisted of 45 children, while the control group consisted of the remaining 45 children with the natural course of the disease.

Results:

Both groups did not differ significantly in terms of age, gender, height, body weight, Risser sign of skeletal maturity and baseline clinical and radiological parameters of scoliosis. Significant reduction of rib hump was observed upon 2-year SpineCor brace treatment ($P=0.04$) compared to the group treated by physiotherapy only ($P=0.91$). Similarly, improvement in lumbar prominence was observed in the actively treated group ($P=0.009$), with a trend towards worse results in the control group ($P=0.07$). In the group treated with the SpineCor brace, significant reduction in pectoral and hamstring muscle contractures as well as reduction in shoulder asymmetry and reduction in anterior and posterior vertical deviation were observed.

Conclusions:

Treatment using the SpineCor dynamic brace leads to a clinical improvement in posture, particularly to reduction in rib hump, lumbar prominence and muscular contractures.

THE SPINECOR BRACE IN THE TREATMENT OF SCOLIOSIS: THE PERTH EXPERIENCE

*Kumar A, Crameri S, Chenik D, Woodland P, Dillon D

Royal Perth Hospital, Perth, WA Australia

INTRODUCTION

Bracing is a generally accepted form of treatment for scoliosis in skeletally immature individuals with Cobb angle of more than 20 deg. The efficacy of bracing is rather more controversial, mainly due to issues with study design and methodology. Compliance is also a major concern with the rigid bracing systems such as the Boston brace. We present our experience with the SpineCor bracing system, which is a low profile system that is also less restrictive. This dynamic system relies on the patients' corrective movements and also offers rotational correction.

METHODS

This is a retrospective case-note and radiological study with prospective data collection. Data collected include Risser scores, Cobb angles and conversion rates to rigid braces and to surgery. The SpineCor cohort is compared to a rigid brace cohort used as a historical case control series. All patients were treated in one institution by 2 surgeons and were under the care of 1 orthotist throughout their duration of treatment.

RESULTS

A total of 29 patients have completed treatment with this brace at the time of this study. Risser score at start of treatment was 2 or less in almost all patients. Average time in brace was 16 months (4-38). Only 4 out of the 29 patients went on to progress by more than 5 deg (13.8%). 5 patients ended up requiring surgery (17.2%). 9 patients were converted to a rigid brace and 3 of these went on to have a surgical correction and fusion. The average correction in the group that was treated exclusively with the SpineCor brace was a decrease in Cobb angle of 5.6 deg (-26 to 8).

CONCLUSIONS

Our progression rate of 13.8% compares favourably with the expected progression rate of 68% in this group. Our surgical conversion rate was also low at 17.2% - which compares favourably to the expected rate of 60%. Our control group, which was treated with a modified Boston type rigid brace showed a progression of more than 5 deg in 13 out of 32 patients (40.6%) and a surgical conversion rate of 11 patients (34.4%). We conclude that the SpineCor brace is an effective device for the brace management of scoliosis in a select group of patients. It is also potentially less restrictive and hence could encourage better compliance rates.

(Unpublished Paper - 2013)

Stud Health Technol Inform. 2012;176:379-82.

RESULTS OF SPINECOR DYNAMIC BRACING FOR IDIOPATHIC SCOLIOSIS

Szwed A, Kolban M.

Source

Department of Paediatric Orthopaedics and Traumatology, Pomeranian Medical University, Szczecin, Poland.

Abstract

Background:

Orthopedic bracing is used in conservative treatment of spinal curvatures. Apart from rigid braces, SpineCor dynamic braces with a flexible design have recently become available. The idea behind dynamic bracing is that derotational and correcting forces are transmitted via a system of corrective bands. The essence of this technique is maintenance of spine mobility while effecting a position in which all components of the three-plane deformity are corrected. The aim of this study is to evaluate early outcomes of SpineCor dynamic brace treatment for idiopathic scoliosis according to SRS methodology and criteria.

Material And Methods:

The study group included 50 patients who were using SpineCor braces due to idiopathic scoliosis. The indication for bracing was the finding of a $>15^\circ$ spinal curvature in skeletally immature patients (Risser grade 0-3). Correction or stabilization of the scoliosis (Cobb angle change of $\pm 5^\circ$) were recognized as positive outcomes, while a negative outcome was defined as progression of the curve of more than 5° or to a value necessitating operative treatment. The study group was divided into subgroups at enrollment, according to gender and degree of scoliosis.

Results:

In the entire study group, correction was demonstrated in 24 patients (48%), stabilization in 14 (28%) and progression in spite of bracing occurred in 7 patients (14%). Five patients in the entire study group (10%) required operative treatment due to rapid curvature progression.

Conclusions:

SpineCor bracing leads to stabilization of scoliosis in the majority of the patients. Introducing the SpineCor brace in patients with a scoliosis angle over 20° and Risser grade 0-3 very effectively prevented curve progression.

ORAL PRESENTATION

Open Access

SpineCor treatment – the Spanish experience. First results

C Herrero*, E Herrero

From 8th International Conference on Conservative Management of Spinal Deformities and SOSORT 2011 Annual Meeting
 Barcelona, Spain. 19-21 May 2011

Purpose of the study

The purpose of this study was to evaluate the effectiveness of the Dynamic SpineCor brace as a new treatment for adolescent idiopathic scoliosis [1,2].

Materials and methods

117 scoliotic patients at our clinic accepted the SpineCor brace and 34 (30 females and 4 males) have already finished the treatment. Assessment of brace effectiveness included percentage of patients who have 5° or less curve progression and the percentage of patients who have 6° or more progression at skeletal maturity. We employed the SRS22 and CAVIDRA questionnaire for the evaluation of patients' quality of life while using the SpineCor System.

Results

Success of the treatment (stabilisation or correction) was achieved in 88.3% of patients and only 11.7% had a progression of their Cobb angle. Out of 34 patients, 18 (52.9%) had a correction and 12 (35.3%) had a stabilisation of their initial Cobb.

Conclusions

The SpineCor brace is an effective treatment for the adolescent idiopathic scoliosis. Even though until now we have a small number of patients treated, the results are extremely promising.

2. Collard C, Vachon V, Circo A, Beausejour M, Rivard CH: Effectiveness of the SpineCor brace based on the new standardized criteria proposed by the Scoliosis Research Society for Adolescent Idiopathic Scoliosis. *J Pediatr Orthop* 2007, **27**:375-379.

doi:10.1186/1748-7161-7-S1-O39

Cite this article as: Herrero and Herrero: SpineCor treatment – the Spanish experience. First results. *Scoliosis* 2012 **7**(Suppl 1):O39.

Published: 27 January 2012

References

1. Collard C, Circo AB, Rivard CH: SpineCor treatment for Juvenile Idiopathic Scoliosis: SOSORT award 2010 winner. *Scoliosis* 2010, **5**:25.

ORAL PRESENTATION

Open Access

A prospective randomized study of the natural history of idiopathic scoliosis versus treatment with the SpineCor brace

C Coillard*, A Circo, C Rivard

From 8th International Conference on Conservative Management of Spinal Deformities and SOSORT 2011 Annual Meeting
 Barcelona, Spain. 19-21 May 2011

Background

The purpose of this randomized study was to evaluate the effectiveness of the Dynamic SpineCor brace [1,2] for early adolescent idiopathic scoliosis (15°-30°) compared to the natural evolution of the disease. 47 patients participated in this study (26 treated and 21 controls).

Material and methods

The inclusion criteria were: 1) High risk of evolution: family history and/or proven progressive 2) No significant pathological malformation of the spine; 3) Girl or boy; 4) Initial Cobb angle between 15° and 30°; 5) Risser 0, 1 or 2. Assessment of brace effectiveness included: 1) percentage of patients who have 5° or less curve progression and the percentage of patients who have 6° or more progression at skeletal maturity, 2) percentage of patients who have had surgery recommendation/undergone before skeletal maturity.

Results

At three years follow up a correction was achieved in 50% of treated patient and only in 9.5% of controls, stabilization in 23.1% treated and 33.4% in controls and progression in 26.9 % for the treated group and 59.1% for controls. Three immature patients required surgical fusion while receiving treatment (11.5%) as well as 3 control patients (14.3%). For the control patients we considered as a failure if the Cobb angle worsened by more than 5° from the original angle and the patient then received treatment.

Conclusions

The SpineCor brace is effective for the treatment of early adolescent idiopathic scoliosis comparing with its natural history. Moreover, the positive outcome appears to be maintained in the long term.

Published: 27 January 2012

References

1. Coillard C, Circo A, Rivard CH: A new concept for the non-invasive treatment of adolescent idiopathic scoliosis: the corrective movement principle integrated in the SpineCor system. *Disabil Rehabil Assist Technol* 2008, 3(3):112-9.
2. Coillard C, Circo AB, Rivard CH: SpineCor treatment for juvenile idiopathic scoliosis: SOSORT award 2010 winner. *Scoliosis* 2010, 5:25.

doi:10.1186/1748-7161-7-S1-O24

Cite this article as: Coillard et al: A prospective randomized study of the natural history of idiopathic scoliosis versus treatment with the SpineCor brace. *Scoliosis* 2012 7(Suppl 1):O24.

CASE STUDY

Management of Adolescent Idiopathic Scoliosis Using the Spinecor Brace System: A Case Study

Rachel Waldrop D.C.¹, Brian Ouellette D.C.², Lisa Tabick D.C.²

Abstract

Objective: To report on the use of the Spinecor system dynamic brace on a patient with Adolescent Idiopathic Scoliosis.

Clinical Features: A 10-year-old girl presented with a right thoracic type one Adolescent Idiopathic Scoliosis measuring 36 degrees.

Intervention and Outcome: Specific corrective movement was implemented utilizing the dynamic Spinecor bracing system to address Adolescent Idiopathic Scoliosis. Elastic straps were positioned specifically to correct the rotational and translational distortions of the right thoracic type 1 scoliosis using a compressive mechanism. The brace was worn for 20 hours per day for 8 months, at which time a 100% correction was noted. At her one year follow-up, the correction remained.

Conclusion: The case of a ten year old female with Adolescent Idiopathic Scoliosis utilizing the Spinecor system dynamic brace was presented. The brace proved to be an effective treatment for idiopathic scoliosis. Further research is warranted to support these findings and to compare the Spinecor brace to other non-invasive treatments for idiopathic scoliosis.

Key Words: *scoliosis, Spinecor, scoliosis bracing, Adolescent Idiopathic Scoliosis, chiropractic*

RESEARCH**Open Access**

SpineCor treatment for Juvenile Idiopathic Scoliosis: SOSORT award 2010 winner

Christine Coillard^{1,2}, Alin B Circo^{1,2}, Charles H Rivard^{1,2*}

Abstract

Introduction: Juvenile idiopathic scoliosis is a condition used to describe patients who are least 4 years of age but younger than 10 when the deformity is first identified. In these patients, the condition is usually progressive and those that are diagnosed at five years or younger have a high chance of progression to a large curve, with additional pulmonary and cardiac complications. The main form of conservative treatment for juvenile scoliosis is the use of a bracing system. This prospective interventional study was conducted to evaluate the effectiveness of the Dynamic SpineCor orthosis for juvenile idiopathic scoliosis as well as to evaluate the stability of the spine after the weaning point.

Material and Methods: For this study, 150 juvenile patients were treated by the SpineCor orthosis between 1993 and 2009. Of these, 67 patients had a definite outcome and 83 are still actively being treated. To determine the effectiveness of the brace the **OUTCOME** criteria recommended by the SRS was used.

Results: The results from our study showed that of the 67 patients with a definite outcome, 32.9% corrected their Cobb angle by at least 5° and 10.5% had a stabilization of their Cobb angle. Within the patients with a definite outcome, 37.3% of patients were recommended for surgery before authorized end of treatment. For this group of patients, surgery was postponed. Looking at the stability of the curves 2 years after the end of the treatment, we found 12.5% of the patients continued their correction without the brace being used and 71.4% remained stable.

Discussion: From our study we can clearly see that the effectiveness of the SpineCor orthosis in obtaining and maintaining the neuromuscular integration of the corrective movement can be achieved effectively for juvenile patients. Over 75% of all patients that finished the treatment had remained stable with a few continuing to correct their Cobb angle after the use of the SpineCor orthosis was discontinued.

Conclusion: Our conclusion from this study is that the SpineCor orthosis is a very effective method of treatment of juvenile idiopathic scoliosis. The results obtained also indicate that treatment outcomes are better with early bracing. Most encouraging perhaps is the fact that the positive outcome appears to be maintained in the long term, and that surgery can be avoided or at least postponed.

ORIGINAL ARTICLE

A Comparison of Thoracolumbosacral Orthoses and SpineCor Treatment of Adolescent Idiopathic Scoliosis Patients Using the Scoliosis Research Society Standardized Criteria

Steven R. Gammon, MD,* Charles T. Mehlman, DO, MPH,* Winston Chan, BS,*
Jonathan Heifetz, CPO,† Gregory Durrett, LO,‡ and Eric J. Wall, MD*

Background: SpineCor is a relatively new bracing system that uses dynamic bracing concepts in the treatment of adolescent idiopathic scoliosis (AIS). Limited data are available regarding its effectiveness. This study compared treatment outcomes of 2 groups of AIS patients treated via either a conventional rigid thoracolumbosacral orthoses (TLSO) or a SpineCor nonrigid orthosis.

Methods: We identified 2 scoliosis patient cohorts: 35 patients treated with a TLSO and 32 patients treated with a SpineCor orthosis. All patients included in these groups conformed with the Scoliosis Research Society (SRS) standardized criteria for AIS bracing: (1) Risser ≤ 2 , (2) curve magnitude 25 to 40 degrees, (3) age ≥ 10 years. Outcomes were SRS standardized with failure being defined as curve progression ≥ 6 degrees, or ever exceeding 45 degrees, or having surgery recommended before skeletal maturity. All patients were followed through the completion of brace treatment or attainment of other treatment end points. The Yates corrected χ^2 test and unpaired t test were used for data analysis.

Results: The 35 patients (32 girls, 3 boys) in the TLSO group had an average age of 13 years (range: 11.1-16.8) and an average primary curve magnitude of 33 degrees (range: 25-40 degrees). Follow-up averaged 2 years (range: 8-61 m) from the beginning of brace treatment. The 32 patients (28 girls, 4 boys) in the SpineCor group had an average age of 13 years (range: 11-15.2) and an average primary curve magnitude of 31 degrees (range:

25-40 degrees). Follow-up for this group averaged 2 years and 6 months (range: 13-73 mo) from the beginning of brace treatment. No significant difference ($P = 0.75$) was found using the more strict outcome measure (≤ 5 -degree curve progression) as the success rates were 60% (21/35) for TLSO and 53% (17/32) for SpineCor. Similarly, no significant difference ($P = 0.62$) was found using the more liberal outcome measure (never reached 45 degrees) as the success rates were 80% (28/35) for TLSO and 72% (23/32) for SpineCor.

Conclusions: We were unable to identify any significant differences in brace treatment outcomes when comparing TLSO and SpineCor treated patients.

Key Words: scoliosis, TLSO, SpineCor, Sainte-Justine brace, outcomes

(*J Pediatr Orthop* 2010;30:531-538)

From the *Cincinnati Children's Hospital Medical Center and University of Cincinnati, Cincinnati, OH; †Presque Isle Orthopedic Laboratory, Erie, PA; and ‡Hanger Prosthetics and Orthotics, Bethesda, MD.

Financial Disclosure: No direct or indirect commercial financial incentive was associated with this publication. This study was supported by a \$5000 grant from a University of Cincinnati Orthopaedic Research Education Fund.

Disclaimers: Views expressed in the paper are those of the authors and do not reflect the official position of Cincinnati Children's Hospital Medical Center, University of Cincinnati, The Spine Corporation Limited, or Hanger Prosthetics and Orthotics.

Reprints: Charles T. Mehlman, DO, MPH, Division of Pediatric Orthopaedic Surgery, Cincinnati Children's Hospital Medical Center, 3333 Burnet Avenue, Mail Location 2017, Cincinnati, OH 45229-3039. E-mail: Charles.Mehlman@cchmc.org.

Copyright © 2010 by Lippincott Williams & Wilkins

Oral presentation

Open Access

Initial results of SpineCor treatment of Adolescent Idiopathic Scoliosis in Seville, Spain

A Vera Miller

Address: Centro de Enfermedades de la Columna Vertebral. C/Jáuregui 4-6, portal D, B-2. 41003 Seville, Spain

Email: A Vera Miller - alfvera@telefonica.net

from 6th International Conference on Conservative Management of Spinal Deformities
 Lyon, France. 21-23 May 2009

Published: 14 December 2009

Scoliosis 2009, 4(Suppl 2):O51 doi:10.1186/1748-7161-4-S2-O51

This abstract is available from: <http://www.scoliosisjournal.com/content/4/S2/O51>

© 2009 Miller; licensee BioMed Central Ltd.

Objective

The objective of this study was to determine the effectiveness of the SpineCor brace in patients with adolescent idiopathic scoliosis treated in Seville, Spain.

Background

The SpineCor brace is used at St. Justine Children's Hospital in Montréal. Their results claim that SpineCor is an effective treatment for AIS. We chose to study the effect of this brace on our patients and see if it was similar to the Montreal results.

Methods

Thirty seven patients were treated using the SpineCor Brace in Seville. Of the 37, 33 patients met criteria of the SpineCor international multicenter study treatment protocol. These patients were still under treatment and had not yet achieved a definitive outcome (two years follow-up post brace treatment). The girls were premenarchal or less than 1 year postmenarchal. Effectiveness was looked at using the following parameters: (1) a percentage of patients with an initial Cobb angle reduction of 5 degrees or greater; (2) percentage of patients with an initial Cobb angle increase or decrease of less than 5 degrees; (3) percentage of patients with an initial Cobb increase of 5 degrees or greater; (4) the number of cases progressing to require surgery or undergone surgery.

Results

At the end of the first year, successful treatment (correction > 5 degrees, or stabilization +/- 5 degrees) was

achieved in 32 of the 33 patients studied from the time of fitting of the SpineCor Brace to the point at which that last Cobb angle was measured during bracing. This meant an overall correction and stabilization for 97% of the patients in Seville, Spain during their first year of treatment. 1 out of 33 patients (3%) had curve progression of more than 5 degrees and underwent surgery.

Conclusion

The SpineCor Brace is a potentially effective treatment for adolescent idiopathic scoliosis. We need to continue our study over a longer period until patients achieve a definitive result. However, these initial results seem promising and are similar to the initial results originally achieved at St. Justine Children's Hospital.

Scoliosis



Oral presentation

Open Access

The use of the SpineCor Dynamic Corrective Brace in Greece: a preliminary report

Irini Tsakiri^{*1}, Vangelis Vakaloglou², Kostantinos Karvounis², Petros Kattou³ and Panagiotis K Soucacos⁴

Address: ¹Osteopath, Private Practice and Biomagnetic Ltd, ²Private Company, ³Asclepios Centre, Private Practice, Greece and ⁴Central Clinic of Athens, Private Clinic, Greece

* Corresponding author

from 5th International Conference on Conservative Management of Spinal Deformities
Athens, Greece. 3–5 April 2008

Published: 15 January 2009

Scoliosis 2009, 4(Suppl 1):O35 doi:10.1186/1748-7161-4-S1-O35

This abstract is available from: <http://www.scoliosisjournal.com/content/4/S1/O35>

© 2009 Tsakiri et al; licensee BioMed Central Ltd.

Aim

The purpose of this observational study was to quantify the efficacy of the SpineCor Dynamic Corrective Brace for patients who were still actively being treated in Greece. It also, evaluated the effectiveness of the Brace for adolescent idiopathic scoliosis in accordance with the new standardized criteria proposed by the Scoliosis Research Society (SRS) [1].

Methods

From 2003–2007, 109 patients were treated. 82 patients met the inclusion criteria proposed by the SpineCorporation [2]. 26 patients met the criteria for inclusion proposed by the SRS [1]. There were no patients with an outcome. Assessment of the brace effectiveness included (1) percentage of patients who had an initial Cobb angle reduction of 5° or greater; (2) percentage of patients who had an initial Cobb angle increase or decrease of less than 5° (3) percentage of patients who had an initial Cobb increase of 5° or greater and (4) the number of cases progressing to require surgery or undergone surgery.

Results

Successful treatment (correction >5°, or stabilization +/- 5°) was achieved in 79 of the 82 patients and 25 of the 26 patients studied from the time of fitting of the Brace to the point which last Cobb angle was measured. This meant 96% correction/stabilization. Two out of 82 patients (2,4%) had curve progression and 1 patient (1,2%)

underwent surgery. 1 patient out of 26 (3,8%) had a curve progression and has been recommended surgery.

Conclusion

The SpineCor Brace is an effective for the treatment of adolescent idiopathic scoliosis.

References

1. Coillard C, Leroux MA, Badeaux J, Rivard CH: **SPINECOR: a new therapeutic approach for idiopathic scoliosis.** *Stud Health Technol Inform* 2002, **88**:215-217.
2. Coillard C, Leroux MA, Zabjek KF, et al: **SpineCor – a non-rigid brace for the treatment of idiopathic scoliosis: post treatment results.** *Eur Spine J* 2003, **12**:141-148.
3. Coillard C, Vachon V, Circo AB, Beausejour M, Rivard CH: **Effectiveness of the SpineCor Brace Based on the New Standardized Criteria Proposed by the Scoliosis Research Society for Adolescent Idiopathic Scoliosis.** *J Pediatr Orthop* 2007, **27**:375-379.
4. Richards BS, Bernstein RM, D'Armato CR, et al: **Standardization of criteria for adolescent idiopathic scoliosis brace studied: SRS Committee on Bracing and Nonoperative Management.** *Spine* 2005, **30**:2068-2075.

The early results of the treatment of idiopathic scoliosis using the dynamic SpineCor brace

Wczesne wyniki leczenia skolioz idiopatycznych z zastosowaniem gorsetu dynamicznego SpineCor

Tomasz Potaczek^(A,B,C,D,E,F), Maja Zarzycka^(A,B,C,D,E,F), Ewa Lipik^(A,D,E,F),
Barbara Jasiewicz^(B,F), Michał Zarzycki^(B), Anna Kokot^(C,F)

Department of Orthopaedic Surgery and Rehabilitation, Medical College, Jagiellonian University, Poland

Key words

idiopathic scoliosis, conservative treatment, dynamic brace

Summary

Introduction: Idiopathic scoliosis is a three-dimensional deformation of the spine. Treatment of this condition depends on many factors, with curve magnitude (Cobb angle) and skeletal maturity (Risser sign) being the most important indices. In progressing curves of $<40^\circ$, bracing is recommended. Different types of braces are available, most of them are of a rigid type. The SpineCor dynamic brace is a system of elastic bands designed to directly correct the spinal column deformity without restricting motion of the spine.

Aim of the paper: The aim of this paper is to present early results of adolescent idiopathic scoliosis treatment with the SpineCor brace.

Material and methods: Inclusion criteria for brace the application included the presence of a progressing curve in a skeletally immature child (Risser 0 – 3). The SpineCor brace was applied according to the principles of the method. The study group comprised 42 patients: 36 girls, 6 boys. The mean age at brace application was 11.9 years. The mean follow-up was 11 months. The mean initial curve size in the whole group was 33.1° in the thoracic spine and 29.4° in the lumbar spine. The evaluated group was subsequently divided into different subgroups depending on: initial curve size, curve type and sex. Results were classified as correction (decrease of curve size of $\geq 5^\circ$), stabilisation (curve change $\pm 5^\circ$) or progression (increase of curve size of $\geq 5^\circ$).

Results: Mean curve size at the final follow-up was 29.7° in the thoracic spine and 25.5° in the lumbar spine. Twenty one patients improved (50%), 14 had curve stabilisation (33.3%) and 7 progressed (16.6%). The best results were achieved in curves lower than 25° Cobb angle ($p < 0.05$) - 60% of patients improved. In contrast, in the over- 45° group, only 37.5% of patients improved. No significant differences were found between treatment results with regard to sex.

Conclusion: SpineCor brace seems to be a good alternative for rigid braces, especially in minor curves. It enables preservation of motion of the spine. This type of brace is easily accepted by young patients. Further follow-up is needed to present long-term results.

A new concept for the non-invasive treatment of Adolescent Idiopathic Scoliosis: The Corrective Movement[®] principle integrated in the SpineCor System

CHRISTINE COILLARD, ALIN CIRCO & CHARLES H. RIVARD

Ste-Justine Hospital, Montreal, Canada

Abstract

Purpose. To evaluate the change in spinal curvature and posture of Idiopathic Scoliosis patients when a curve specific 'Corrective Movement[®] Principle' (CMP) is applied.

Methods. This prospective interventional study was carried out on a group of 639 patients (92.3% females) having idiopathic scoliosis treated with the SpineCor brace. All girls were premenarchal or less than 1 year postmenarchal. Assessment of brace effectiveness followed the SRS outcome criteria for bracing. The clinical, radiological and postural evaluations assisted to define the patient classification, which guided the unique application of the CMP to each type of curvature.

Results. A total of 583 patients met the outcome criteria. Overall, 349 patients have a definitive outcome. Successful treatment was achieved in 259 (74.2%) of the 349 patients from the fitting to the weaning of the brace. Some 51 immature patients (14.6%) required surgical fusion while receiving treatment. Eight mature patients out of 298 (2.7%) required surgery within 2 years of follow-up beyond skeletal maturity.

Conclusion. The SpineCor brace is effective for the treatment of adolescent idiopathic scoliosis. Moreover, positive outcomes are maintained after 2 years because 151 (93.2%) of 162 patients stabilized or corrected their end of bracing Cobb angle up to 2 years after bracing.

ORIGINAL ARTICLE

Effectiveness of the SpineCor Brace Based on the New Standardized Criteria Proposed by the Scoliosis Research Society for Adolescent Idiopathic Scoliosis

Christine Coillard, MD,* Valerie Vachon, MSc,† Alin B. Circo, MSc,* Marie Beauséjour, MScA,* and Charles H. Rivard, MD, FRCS(c), FAAOS, FACS*

Abstract: The purpose of this prospective observational study was to evaluate the effectiveness of the Dynamic SpineCor brace for adolescent idiopathic scoliosis in accordance with the standardized criteria proposed by the Scoliosis Research Society Committee on Bracing and Nonoperative Management. They proposed these guidelines to make the comparison among studies more valid and reliable. From 1993 to 2006, 493 patients were treated using the SpineCor brace. Two hundred forty-nine patients met the criteria for inclusion, and 79 patients were still actively being treated. Overall, 170 patients have a definitive outcome. All girls were premenarcheal or less than 1 year postmenarcheal. Assessment of brace effectiveness included (1) percentage of patients who have 5 degrees or less curve progression, and percentage of patients who have 6 degrees or more progression; (2) percentage of patients who have been recommended/undergone surgery before skeletal maturity; (3) percentage of patients with curves exceeding 45 degrees at maturity (end of treatment); and (4) Two-year follow-up beyond maturity to determine the percentage of patients who subsequently underwent surgery. Successful treatment (correction, >5 degrees, or stabilization, \pm 5 degrees) was achieved in 101 (59.4%) of the 170 patients from the time of the fitting of the SpineCor brace to the point in which it was discontinued. Thirty-nine immature patients (22.9%) required surgical fusion while receiving treatment. Two (1.2%) of 170 patients had curves exceeding 45 degrees at maturity. One mature patient (2.1%) required surgery within 2 years of follow-up beyond skeletal maturity. The conclusion drawn from these findings is that the SpineCor brace is effective for the treatment of adolescent idiopathic scoliosis. Moreover, positive outcomes are maintained after 2 years because 45 (95.7%) of 47 patients stabilized or corrected their end of bracing Cobb angle up to 2 years after bracing. Therapeutic study—investigating the results of treatment: level II.

Key Words: adolescent idiopathic scoliosis, conservative treatment effectiveness, SpineCor brace, standardized criteria

(*J Pediatr Orthop* 2007;27:375–379)

From the *Research Center, Sainte-Justine Hospital, Montreal, Quebec, Canada, and †SpineCor Corporation Limited.

Study conducted at the Research Center, Sainte-Justine Hospital and University of Montreal, Canada.

Study was funded by the Research Center, Sainte-Justine Hospital and the Spine Corporation.

Reprints: Charles H. Rivard, MD, FRCS(c), FAAOS, FACS, Research Center, Sainte-Justine Hospital, 3175 Côte Ste-Catherine, Montreal, Quebec, Canada H3T 1C5. E-mail: chrivard@gmail.com.

Copyright © 2007 by Lippincott Williams & Wilkins

Jacek Durmała, Jerzy Piotrowski, Krzysztof Czernicki, Hanna Jendrzejek

Chair and Department of Rehabilitation, Medical University of Silesia, Katowice, Poland

Preliminary results of use of SpineCor brace in Katowice (Poland)

Wstępne wyniki zastosowania gorsetu SpineCor w Katowicach

ABSTRACT

Background: The study was planned to assess the use of the SpineCor brace in patients with idiopathic scoliosis who refused treatment with a rigid brace and kinesiotherapy.

Material and methods: Fourteen patients (13 females and 1 male) aged 9–17 years (mean 12.75) were fitted with SpineCor dynamic braces. The patients presented 20 scoliosis curves ranging from 12° to 49° of Cobb angle (mean 27.4°). Eleven patients presented 15 scoliosis curves below 35°, ranging from 12° to 34° (mean 22.7°). All the patients refused other methods of conservative treatment. The outcome of the treatment was assessed after 6 months on the basis of radiological examination.

Results: After 6 months of SpineCor bracing, the mean Cobb angle showed no significant change (initial value $27.4^\circ \pm 11.26^\circ$, median 27.0°; outcome value $27.6^\circ \pm 14.58^\circ$, median 25.5°). Considering patients with scoliosis curves below 35°, the outcome showed no significant change (initial value $22.7^\circ \pm 7.9^\circ$, median 24.0°; outcome value $21.1^\circ \pm 8.8^\circ$, median 20.0°). All the patients declared further interest in active scoliosis treatment, including kinesiotherapy.

Conclusions: The SpineCor brace, with respect to its good general acceptance, may be considered as a valuable, conservative method of treatment in patients refusing other therapy. Moreover, introduction of the SpineCor brace and a careful follow-up induced increased interest in kinesiotherapy among treated patients. However, SpineCor efficacy seems to be limited to scoliosis curves not exceeding 30–35° of Cobb angle. Limited experiences and short follow-up period prevent the authors from defining the use of the SpineCor brace as a stand-alone method for conservative scoliosis treatment.

KEY WORDS: idiopathic scoliosis, SpineCor brace, dynamic brace



SPINECOR ADULT TREATMENT RESULTS



ORAL PRESENTATION

Open Access

SpineCor in the treatment of adult scoliosis

Louise Marcotte

From 7th International Conference on Conservative Management of Spinal Deformities
 Montreal, Canada. 20-22 May 2010

Introduction

Adult patients with scoliosis are offered little hope for rehabilitation and pain relief by health care professionals. Long term use of AINS and pain medication has proven harmful; rigid bracing is only rarely used due to its often disappointing results; surgery is only reserved for the most serious cases and mainly to preserve vital functions. Conservative management has also had poor outcome often due to long-term patient compliance.

Long-term treatment of Adult Scoliosis with The SpineCor Pain Relief Back Brace deserves more attention. SpineCor offers a wide variety of combinations to improve posture. Its primary therapeutic goal is the relief of pain while reducing the mechanical strain on the neuromusculoskeletal system, which would only with time, aggravate of the condition. The brace acts as a dynamic support to offload the spinal joints, therefore protecting the misaligned spine from the compressive forces of gravity, while the resistive elastic bands reinforce the core musculature to an overall better postural alignment.

Methods

A preliminary long-term study was made on 30 adult scoliosis patients, 26 females and 4 males, aged between 18 and 69. All suffered enough chronic back pain to seek treatment and were fitted with a SpineCor Pain Relief Back Brace according to the SpineCor® Protocol. The data over an 18 to 28 months time frame was collected while the patients were actively wearing their brace anywhere from 10 to 130 hours/week.

Results

The overall improvement in the perception of pain by the adult scoliotic patients was 77%, and appeared to remain stable with time (78%, 83% and 76% on

subsequent visits). Half of them reported having complete resolution of their symptoms.

Although the brace had no significant effect on reducing the pathological curvature of the spine, as would be expected in mature skeletons, it was subjectively noticed both by the evaluator and the patient themselves that they had a better overall postural alignment while they were wearing their brace.

Conclusion

These results suggest that the SpineCor Pain relief Back Brace is a promising conservative method for the long-term management of scoliosis in the adult population as it significantly reduces their pain status and improves their wellbeing

Published: 10 September 2010

doi:10.1186/1748-7161-5-S1-O47

Cite this article as: Marcotte: SpineCor in the treatment of adult scoliosis. *Scoliosis* 2010 5(Suppl 1):O47.

Oral presentation

Open Access

Treating adult scoliosis and back pain with the SpineCor Pain Relief Back Brace

J McAviney* and T Pappas

Address: The London Scoliosis Clinic UK

Email: J McAviney* - jebmaviney@gmail.com

* Corresponding author

from 6th International Conference on Conservative Management of Spinal Deformities
Lyon, France. 21-23 May 2009

Published: 14 December 2009

Scoliosis 2009, **4**(Suppl 2):O67 doi:10.1186/1748-7161-4-S2-O67

This abstract is available from: <http://www.scoliosisjournal.com/content/4/S2/O67>

© 2009 McAviney and Pappas; licensee BioMed Central Ltd.

Objective

The main objective of this study was to explore the issues of treating adult scoliosis and pain by conservative means. We present two case studies of different types of adult scoliosis successfully managed with the SpineCor brace.

Background

Management of pain in adult scoliosis represents a significant clinical challenge. Both adolescent scoliosis in the adult (ASA) and degenerative de-novo scoliosis (DDS) can cause significant pain. Over recent years, the SpineCor brace has been used by practitioners in the treatment of painful adult scoliosis. To date, SpineCor has been used clinically in adult treatment in hundreds of cases, and the empirical results seem positive.

Methods and results

Patient A, a 26 year old female with painful ASA, had pain prior to SpineCor treatment that averaged 7/10 (10 being the worst). Using the SpineCor brace daily for 8 to 12 hours for 3 months, she had a gradual improvement of her pain to an average of 1-2/10. The initial x-ray showed a 32° right thoracic scoliosis. In the SpineCor brace 1 month after fitting, the x-rays showed an improvement of 8° to 24°. Her pain relief (1-2/10) and spinal correction have been maintained for over 2 years by using the SpineCor brace part-time. Patient B, a 47 year old female with a DDS, had pain prior to treatment that averaged 8/10. In the SpineCor brace, she had an immediate relief of her pain to 3/10. The initial x-ray showed a 40° degenerative

lumbar scoliosis curve. In the SpineCor brace, x-rays showed an improvement of 7° to 33° in her curve. Her pain relief (0-3/10) and spinal correction have been maintained for over 2 years by using the SpineCor brace daily. Also of note is the improved left lateral shift showing "spinal off loading".

Outcome

Both patients achieved significant pain reduction over a 2 year period, demonstrating that in these cases, the SpineCor brace has been an effective treatment for pain related to ASA and DDS.

Conclusion

Prospective research in a large population is required to determine the overall effectiveness of the SpineCor brace, but early results seem positive.

Oral presentation

[Open Access](#)

Adult scoliosis and the SPINECOR® dynamic brace: some early results on efficiency

 Louise Marcotte*^{1,2}, Charles-Hilaire Rivard² and Christine Coillard²

 Address: ¹Posturetek Inc., a private Chiropractic Practice, Montréal, Canada and ²St-Justine Hospital, Montréal, Canada

* Corresponding author

 from 5th International Conference on Conservative Management of Spinal Deformities
 Athens, Greece. 3–5 April 2008

Published: 15 January 2009

Scoliosis 2009, 4(Suppl 1):O56 doi:10.1186/1748-7161-4-S1-O56

This abstract is available from: <http://www.scoliosisjournal.com/content/4/S1/O56>

© 2009 Marcotte et al; licensee BioMed Central Ltd.

Background

Scoliosis offers little hope for rehabilitation in the adult population. Pain and viscerosomatic dysfunction are frequently encountered. Conventional medical care uses rigid bracing, medication and surgery for the most serious cases.

The treatment of adult scoliosis with the SpineCor® Dynamic Brace deserves more attention. This brace offers a variety of combinations to improve spinal alignment depending on the type, severity and rigidity of the curve. The main therapeutic goal of this brace is to reduce the strain on the neuromusculoskeletal system. The brace acts as a dynamic support against compressive loading on the vertebral joints while creating a corrective movement in the spine.

Methods

Seventeen adult scoliosis patients aged between 21 and 69, whose curves had a Cobb angle 18 to 78 degrees, were fitted with a SpineCor® Dynamic Brace in a Chiropractic practice in Montréal, Canada. 13 of them were actively wearing it from 10 to 70 hrs per week.

Results

Thirteen of the 17 have complete resolution of their symptoms while in brace, 3 of which had a Numerical Pain Scale (NPS) over 6/10, and 2 had never experienced any pain before or after the treatment. It is important to make note that 8 of the 13 patients were concomitantly receiving CBP® Chiropractic care.

Conclusion

These results suggest that the SpineCor® Dynamic Brace is a potential, promising conservative method for the treatment of scoliosis in the adult population. In this study, utilization of this brace improved patient pain and sense of wellbeing.



Millennium House
Peak Business Park
Foxwood Road
Chesterfield S41 9RF
United Kingdom

Tel: +44 1246 455381
info@spinecor.com
www.spinecor.com