Chiropractic Treatments for Idiopathic Scoliosis: A Narrative Review Based on SOSORT Outcome Criteria

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Abstract

Objective: The purpose of this review was to evaluate the current body of literature on chiropractic treatment of idiopathic scoliosis against the 2014 consensus paper of the Society on Scoliosis Orthopedic and Rehabilitation Treatment (SOSORT) and the Scoliosis Research Society (SRS) Non-Operative Management Committee for outcome reporting in nonoperative treatments.

Methods: A search of the PubMed and Index to Chiropractic Literature databases for studies published from January 2000 through February 2016 detailing specific treatments and outcomes for idiopathic scoliosis was conducted.

Results: A total of 27 studies that discussed chiropractic scoliosis treatments were identified. Of these, there were 15 case reports, 10 case series, 1 prospective cohort, and 1 randomized clinical trial. Of the 27 studies, only 2 described their outcomes as recommended in the 2014 SOSORT and SRS Non-Operative Management Committee consensus paper.

Conclusion: The 2014 SOSORT and SRS Non-Operative Committee consensus paper details the format and types of outcomes they collectively believe are the most important and relevant to the patient. Among the chiropractic studies located in this review, 2 described outcomes consistent with how SOSORT recommends they be reported. Given that these consensus papers form the basis for nonoperative treatment recommendations and outcome reporting, future chiropractic studies should seek to report their outcomes as recommended by these papers. This will allow for better interprofessional collaboration and methodologic comparison. (J Chiropr Med 2016;xx:1-8)

Key Indexing Terms: *Chiropractic; Rehabilitation; Scoliosis; Spine*

Introduction

Idiopathic scoliosis is a condition with a long history of proposed nonoperative treatments. These treatments have varied widely, but often with the common goal of stabilizing or correcting the Cobb angle and/or providing pain relief.[1,2]

Chiropractic medicine first began in the United States as a healing profession in 1895.[3] Chiropractic medicine was originally created under the premise that spinal misalignments, called vertebral subluxations, could adversely affect nearby peripheral nerves and result in downstream organic health disorders.[4] Despite chiropractic medicine's declared focus on the spine and conditions thereof, comparatively little research has been performed on the relationship between chiropractic care and idiopathic scoliosis. Because of the variety of treatment methods employed by doctors of chiropractic,[5] it is difficult to compare the effectiveness of various methods against one another. For example, chiropractic physicians, within their respective scopes of practice, may use spinal manipulation, nutrition, exercises, traction, bracing, or electric stimulation as scoliosis treatment therapies. Although these therapies are common to other health professions as well, it is possible that the results differ when performed by chiropractic physicians. They may also be reported differently than by other health professions. The focus of this article is less on the treatment results specifically, but rather on the manner in which they are reported. Thus, the goal of this review was to identify

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peer-reviewed chiropractic literature specifically regarding idiopathic scoliosis and compare the reporting of results to that recommended by the 2014 SOSORT and SRS consensus paper[6] and Weiss.[7] This review may provide insight into how future chiropractic studies can use this consensus paper to strengthen outcome reporting and foster interprofessional communication.

Methods

We searched the PubMed and Index to Chiropractic Literature databases for studies published from January 2000 through February 2016 detailing specific treatments and outcomes for idiopathic scoliosis. We searched using the key words *chiropractic* AND *scoliosis*. We avoided other search terms, such as manipulation, bracing, and exercises, because other disciplines also perform these same physiotherapeutic procedures. We wanted to focus only on those studies wherein the procedures administered were either performed or directly supervised by chiropractic physicians. Each of the chiropractic studies we identified was compared with the individual outcome criteria identified.[6,7] A table was created for each outcome criterion that totaled the number of chiropractic studies identified that satisfied each given criterion. We did not search further back as it is increasingly difficult to obtain full-text articles prior to the year 2000 in electronic format. Additionally, because SOSORT was organized in 2004, studies much earlier than 2000 would not, in all likelihood, report their outcomes in a manner consistent with SOSORT recommendations.

Results

The two databases were cross-referenced (78 citations in PubMed and 221 citations in ICL). For this review, the following inclusion criteria were used[1]: full-text studies available,[2] at least one outcome measure reported,[3] study available in English,[4] and no abstracts, redundancies, or studies not reporting specific treatment methods and outcomes. We were left with a total of 27 studies for evaluation that were published between January 2000 and February 2016. These studies were broken down into the following study designs: 15 total case reports, 10 case series, 1 prospective cohort study, and 1 randomized clinical trial. When subcategorizing these studies based on the type of treatment used, we found that 5 studies used chiropractic manipulation only, 15 studies used manipulation plus exercises, 2 studies used exercises only, 3 studies used bracing only (as prescribed and fitted by a chiropractor), and 2 studies used chiropractic manipulation and rigid bracing (orthotist-fitted). According to the 2014 SOSORT and SRS consensus paper,[6] as well as Weiss,[7] specific outcome data were specifically recommended. In summary, here are the main criteria they outlined, which formed the basis for this review[6,7]:

1. Initial patient age and Risser stage (baseline should be Risser 0–2)
2. Initial Cobb angle (ie, Cobb between 10° and 30°, >30°, and >50°)
3. Cobb angle at skeletal maturity (Risser 5)
4. Percentage of patients whose Cobb angle improved by ≥6°
5. Percentage of patient whose Cobb angle stabilized within ±5°
6. Percentage of patients whose Cobb angle progressed by ≥6°
7. Percentage of patients whose curves progressed beyond 50°
8. Skeletally immature patients managed through end of growth
9. Skeletally mature patients managed for at least 5 years.

The initial 2005 SOSORT consensus paper,[8] which preceded the 2014 SOSORT Consensus paper, formed the framework for the 2006 Council on Chiropractic Guidelines and Practice Parameters Guidelines for the management of idiopathic scoliosis.[9] Therefore, it was appropriate to review the various chiropractic studies relating to scoliosis treatment in relation to these above criteria.

Manipulation Only

A total of 6 studies were identified. Table 1 compares these studies against the recommended outcome criteria. Jaszewski and Sorbara reported on the treatment of a 7-year-old patient with juvenile idiopathic scoliosis.[10] She received manipulation using the Pierce technique on 4 office visits in 1 month, after which a follow-up scoliosis radiograph was taken. It revealed a curve reduction of 13° to 5°. This case report does indicate a curve correction of at least 6°. However, this patient was only followed for 1 month. Although the authors note that the patient continued treatment for additional symptoms unrelated to the scoliosis, additional Cobb angle measurements are not reported at later follow-ups. Another case report by Khauv and Dickholtz outlined the treatment of a 15-year-old with a 44° scoliosis that decreased to 32° after 5 months of upper cervical manipulation (National Upper Cervical Chiropractic Association [NUCCA]).[11] Although the patient was managed for a total of >4 years, a long-term Cobb angle measurement is not reported. Chung and Salminen reported on a case of a 10-year-old girl with a 35° thoracolumbar scoliosis.[12] She was treated using NUCCA manipulation over a total of 25 weeks. Follow-up radiograph at 25 weeks revealed a Cobb angle reduction of 10°. The authors do not report a baseline Risser stage, nor do they provide a long-term follow-up measurement at skeletal maturity. Chen and Chiu reported the case of another 15-year-old girl