Reviewer's report

Title: Indications for conservative management of scoliosis (guidelines)

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Reviewer: Joseph O'Brien

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General

In this paper the authors present reasonable balanced guidelines for the conservative management of idiopathic scoliosis consistent with current research and published evidence based outcomes. Defining and communicating such guidelines to patients and clinicians is essential to ensure appropriate standards of patient care. These Guidelines are especially important at this time as the growth of the SOSORT organization and the creation of the SCOLIOSIS journal portend a potentially significant global expansion of conservative management of scoliosis.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. On line 3 in the Epidemiology section 40% should be restated as 40o.

2. In the guidelines Section I.b there needs to be a clarification as to what is meant by “treatment-free intervals”.

3. Section V. Adults with Cobb angles > 30 degrees omits any guidelines for the use of braces which has been observed by the reviewer as a potential clinical practice by one or more of the authors. What is the author’s recommendation for adult brace use?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. In the guidelines Section I.b there needs to be a clarification as to what is meant by “treatment-free intervals”.

Discretionary Revisions (which the author can choose to ignore)

1. The authors define the first two methods of conservative management as Outpatient therapy (physical therapy) and Scoliosis Intensive Rehabilitation (SIR). Specific reference is made to several methods such as Lyonaise, Side-Shift, Dobosiewicz, and Schroth. The underlying assumption is that Outpatient therapy or SIR is performed by clinicians trained in one or more of the cited methods. This section needs to be strengthened to explicitly emphasize that; 1. Physical therapy for scoliosis is not just general exercises but rather one of the cited methods designed to address the particular nuances of this spinal deformity, and 2. Application of such methods requires therapists and clinicians specifically trained and certified in those scoliosis specific conservative intervention methods.

2. The authors state that the primary aim of scoliosis management is to stop curvature progression. With this aim in mind, the authors base their guidelines for conservative intervention on current information regarding the risk of significant curvature progression in a given period of time. This aim is consistent with current outcome studies, however there is evidence to suggest that early intervention methods designed to interrupt steady state spinal loading at the apex of the curvature, can be predicted to forestall the cascade of molecular events that transform benign spinal curvatures into progressive spinal deformities. It is reasonable to expect that further research to define patient-specific mechanics of spinal loading may allow quantification of a critical threshold at which structural curvature establishment and progression become inevitable, and thereby yield strategies to prevent development of spinal deformity.
When such research is completed, Conservative Guidelines should be redirected to Prevent Spinal Deformity in Children rather than simply prevent progression. Until such time, the guidelines could be enhanced by the authors at least stating that while the aim is to prevent progression, the goal is to keep curve magnitude below 30° in order to minimize the potential signs and symptoms of scoliosis and the risk of progression after skeletal maturity.

3. The authors conclude with a caveat that their Guidelines relate to Idiopathic scoliosis and highlight certain conditions that warrant alternative treatments. This section is somewhat vague and seems to circumvent a vital question as to when and why conservative clinicians should counsel their patients on potential surgical options as a fourth mode of treatment. It is unfortunate, but well documented that as of this time a certain percentage of patients will progress in one or more of the signs and symptoms of scoliosis despite the use of any or all of the three modes of conservative treatment defined by the authors. In order to provide total patient care and attain the stated aim of preventing progression the guidelines should clearly indicate if, and when, surgery should be considered and referral to a scoliosis spine surgeon should be offered.


What next?: Accept after discretionary revisions

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.