Reviewer's report

Title: Conservative treatment in scoliosis and vital capacity evolution Statistical analysis among 321 scoliotic patients treated with CMCR brace. Comparison to a group of 240 scoliotic patients treated with Lyon brace

Version: 1 Date: 9 November 2010

Reviewer: Giampiero Merati

Reviewer's report:

This study evaluates the evolution of respiratory capacity in scoliotic patients during brace treatment. This can be an article of importance in its field, as few data are currently available on this topic, and may be clinically relevant in the field of scoliosis treatment. However, there are some major concerns to be addressed:

• Major Compulsory Revisions
  1. It is not clear whether this is a comparative study between two different kinds of braces or a simple retrospective study, without comparisons between braces types. In the first case, please note that the 2 groups of patients are not matched for both age and, more important, for severity of scoliosis. The aim of this study should be declared more clearly in the Introduction section.
  2. The “Results” session is very confused and difficult to read. 13 tables are too much: please consider to show only relevant results.
  3. In table 12 and 13 there is a comparison between CMCR and Lyon brace (which statistical test has been performed?), and the Authors conclude in the Discussion section that CMCR brace is more effective on the pulmonary capacity reduction. However, scoliosis were more severe in the Lyon brace treated patients: therefore, one cannot exclude that the reduced evolution of pulmonary capacity in that group is due to the different gravity of scoliosis rather than to different brace efficacy.

• Minor Essential Revisions
  1. Spirometry can be considered a standard measure: therefore, the full description of the apparatus and the analysis methods used in this paper seems to be redundant.
  2. How long was the observation period? This is an important feature of this study and should be reported in the “Methods” paragraph of the Summary and in the Methods section.
  3. Only 137 out of 321 patients completed the treatment with the CMCR brace, and only 142 out of 240 patients completed the treatment with the Lyon brace. Why the drop-out numbers are so high? Please, provide some information about it, or compare this point to other literature data.
4. The title “Methods” should be replaced by “Statistical analysis”.

5. Most average values reported in the text should be followed by their SD values.

6. Some sentences of the Discussion section (for example the 7° paragraph) should be placed in the Methods section.

7. The two last columns most tables are redundant: better to provide the p value only.

• Discretionary Revisions

1. It is advisable to report in the Summary section the number of males/female in each treatment group, as well as the SD for the scoliosis angulation.

2. The acronym CMCR is not defined on its first appearance.

**Level of interest:** An article of importance in its field

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.