Reviewer’s report

Title: Vital capacity evolution in patients treated with the CMCR brace. Statistical analysis among 321 scoliotic patients

Version: 2 Date: 31 March 2011

Reviewer: Manuel Rigo

Reviewer’s report:

I would like to thank the authors for submitting this paper to Scoliosis. It is an interesting issue indeed. In my opinion this is a new paper, so it needed a new full revision. Enclose please find my comments, all made with a constructive spirit. I hope my recommendations help the authors to improve the manuscript.

INTRODUCTION


MATERIAL AND METHODS

Population could be better described: Number of patients included (female/male) with an initial mean age of X (SD and range and a mean initial Cobb angle of X (SD and ranges).

In this part of the section the authors tend to create some confusion. For this reviewer is difficult to understand how a two years old child is able to perform correctly a basal spirometry (ages ranged from 2 to 16 years old). If the authors enrolled 321 patients in this study and all of them had idiopathic scoliosis with a negative neurological examination, what means ‘Malformative, neurological or dysplastic scoliosis were excluded from this study’? May be, they should say that
out of X patients treated with the CMCR brace 321 were enrolled to this study after excluding non idiopathic scoliosis and lumbar curve pattern. However this is not clear because later in table 1, seven patients are reported as having lumbar curve pattern. On the other hand it is stated that all the patients had progressive scoliosis. To state this might constitute a clear bias. First at all the rage of the initial Cobb angle is not reported. The mean Cobb angle before treatment is quite low (22.3º), the data appears only in the abstract but not later and only 15 patients had a Cobb angle equal or higher than 30º (according to table 2). The mean Cobb angle and the few cases over 30º suggest that some patient, or quite a lot of patients, were braced with angular values lower than 20º. Although authors define all the cases as progressive, it is questionable that a population coming from a Cobb angle of less than 20º can be defined as progressive just after an increase of 5º in a period of 6 months. This would be valid for an initial Cobb angle higher than 20º but, fluctuation, under 20º, can explain changes of 5º or more with a not clear meaning about progression. It is the opinion of this reviewer that a cohort with a mean initial Cobb angle of 23º can not be defined as including a 100% of documented progressive cases, no matter whether the Cobb angle has increased 5º or more on a period of six months. This is not proving that all the cases went into progression.

It would be desirable that the authors describe the protocol used for the test: Name of the spirometer, how reference values were provided, who was explaining the patients how to perform the test and who was supervising the test, always the same observer?, did the patients repeat several times the test and the best was then selected? Or did they just take the first one? What about training?. Sitting or standing?, etc . Also, although statistically significant, has a difference of 4% in the reference value any medical relevance?.

Some other features that should be clarified: how can the authors explain that, out of 321 starting since 1999, 115 had finished their treatment by 2005 and only 22 more did it from 2005 until now? (137 have finished nowadays). There must be an explanation, please clarify. On the other hand all regarding described sample and later, results section and table is very confusing because in table 1, the group at the beginning of treatment includes 321 patients while later, in table 2 N is 217, why? Which group is that? On the other hand, later, in table 3, N is 90, which group is that? Are the results from the group with finished treatment compared with the whole initial sample or as an independent group?

RESULTS

According to the above discussed by the reviewer, this section should be better structured and tables clarified.

DISCUSSION

This section should be changed according to above discussed points.

Level of interest: An article whose findings are important to those with closely
related research interests

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:
I declare that I have no competing interests