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Letter to the editor

Best in-brace curve correction is related to multiple variables in adolescents with idiopathic scoliosis

To the Editor,

Based on a Cochrane review and the Bracing in Adolescent Idiopathic Scoliosis Trial, there are sufficient data on the effectiveness of bracing for adolescent idiopathic scoliosis (AIS) patients with curvatures of less than 50° [1,2]. Nevertheless, there is a debate on the parameters affecting the outcome of bracing treatment in AIS. I read with great interest the recently published article by Lang et al. [3]. In this meaningful research, the authors focused on investigating the in-brace curve correction (IBC) of 119 AIS patients using coronal deformity angular parameter (C-DAR). The C-DAR value was measured through dividing major Cobb angle by the number of involved vertebrae in the curve to evaluate the angulation of scoliosis curve. Based on the results, the immediate IBC may become more than 50% if the C-DAR is less than 5 and becomes less than 50% when it is more than 6. This finding is important since it can be used to predict the IBC and outcome of bracing treatment of AIS without any need for supine lateral bending radiographs. However, a long-term longitudinal study is required to verify the accuracy of C-DAR for assessing the outcome of bracing in AIS.

One of the important points which should be considered is the immediate IBC in the first radiographs does not necessarily correlate with the best in-brace correction of the scoliosis curve. In some patients, the best IBC occurs during the first 2 months after initiation of bracing while in some others it may occur during the first year of treatment [4]. In this study, a 6-week investigation of Gensingen bracing on IBC was conducted to evaluate the relationship between IBC and age, sex, height, weight, BMI, Risser sign, and menarchal status. The authors found no significant relationship between these variables and the degrees of IBC. Therefore, other important parameters, such as brace compliance, adjustment of the corrective forces exerted by the brace at the skin-brace interface, flexibility of the spine, and the patient's quality of life, may play a role in IBC above 50% [4–7], were not evaluated in this study. If the pressure applied by the corrective pads of the brace on the patient's body is too high, it may cause skin damage, reduce patient's tolerance, and ultimately reduce compliance with the brace. The reduction of brace compliance can lead to poor outcomes. On the other hand, the optimal IBC does not occur if the pad pressure is less than the standard value. Therefore, appropriate adjustment of the pad pressure at shorter intervals or using reliable pressure measurement tools to achieve the 3-point pressure system inside the brace may increase the brace compliance and IBC. Introducing the C-DAR to predict IBC in AIS patients is the significant message of this study. The next step for researchers is to conduct a long-term study considering potential prognostic factors for IBC.

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