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Assessment of respiratory function in adolescents with idiopathic scoliosis treated with brace.

Paediatric lung diseases

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Introduction and Background. Idiopathic scoliosis of the spine (ISS) is usually treated with long term brace application. At the time of application, transient restriction of vital capacity was observed but it is not known how the respiratory function (RF) is affected overall during treatment.

Aims and Objectives. The aim of this study was to assess the RF in cases with ISS who were treated with brace in comparison with the base volumes.

Method. 46 children (89% girls, mean age 12.9 ± 1.6 years, BMI 19.7 ± 3.54) were observed for more than 6 months (mean follow-up time 16 ± 6.6 months). Ten (21.7%) children had thoracic, 25 (54.3%) thoracic and lumbar and 11 (23.9%) lumbar scoliosis. The severity of the scoliosis was defined as mild in 19 (39.1%), as moderate in 24 and as severe in 3 (6.5%) cases.

Results. The average FVC value for children during the first visit, before the brace application, was $91.5 \pm 15.3\%$ while it was $87 \pm 14.8\%$ ($p < 0.05$) at the last visit. During follow-up and while observing improvement or stabilization of the deformity, 28 children (60.8%) experienced a FVC reduction of the order of $10.4 \pm 3.8\%$ unrelated to the severity of scoliosis while 18 (39%) showed unaltered or improved RF.

Conclusions: The application of brace adversely affects the respiratory function of children with scoliosis regardless the severity or aggravation of the spine deformity. Long term follow-up of a larger sample of children with scoliosis after treatment completion will help to draw clearer conclusions.