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A retrospective study of thirty-six cases of vestibular hypofunction in adolescents with idiopathic scoliosis

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Objective

The objective of this study is to determine the incidence of vestibular hypofunction in patients with adolescent idiopathic scoliosis (AIS).

Study design

Thirty six cases of patients with AIS, between the ages of eight and fifteen years received a full spine anterior-posterior (AP) radiograph and binaural bithermal caloric testing using air irrigation at 47 degrees C and 25 degrees C. Measurements and evaluation were performed using Micromedical Spectrum software http://www.micromedical.com.

Results

Findings included a 15.4 percent (n = 6) occurrence of complete unilateral vestibulopathy and 50 percent (n = 18) occurrence of significant (>25%) unilateral weakness. Sixty-six percent of patients categorized with right thoracic curvatures (n = 15) revealed an ipsilateral vestibular weakness. All patients with left lumbar curvatures (n = 4) demonstrated an ipsilateral left vestibular weakness. Conversely, those with double major curvatures (n = 11) exhibited a more heterogeneous distribution. A correlation of one was noted between subjects in the right thoracolumbar group and right vestibular weakness (n = 4). The mean percentage vestibular weakness (n = 36) for all groups was 35.53.

Conclusion

A significant vestibular weakness was observed in patients with AIS when compared to a normal population. The direction of the curvature is related to the side of vestibular weakness. None of the thirty-six patients complained of vestibular based symptoms. This suggests a higher cortical neglect syndrome of the vestibulocortical areas in the right parietal cortex. Further studies including functional magnetic resonance imaging and other functional testing of the vestibular cortex is warranted.