Changes in clinical and radiographic parameters after a two-week regimen of chiropractic manipulation combined with soft tissue therapy and neuromuscular rehabilitation in 7 adult idiopathic scoliosis patients

RESULTS

The average Cobb angle improvement was 9 degrees. Rotation of the apical vertebra decreased by an average of 3%. Deviation of the apical vertebra from the intercrestal line decreased by an average of 8 mm. Spirometric indices demonstrated median improvements of 50 cc's in forced vital capacity improvement, 2% in forced expiratory rate, 700 cc's in peak expiratory flow, and 20 cc's in forced expiratory volume in one second. Scoliometer readings decreased by an average of 3.5 degrees. Timed one-legged stability improved by an average of 10.7 seconds. The most dramatic improvements in average spinal ranges of motion occurred in right lateral cervical flexion (8.7 degrees), right thoracic rotation (6.9 degrees), and left lateral cervical flexion (5.1 degrees). An average decrease of 8.7 degrees was noted in left lateral cervical flexion.

Three patients did not respond to requests for follow-up data; three patients completed the SRS-22, four patients completed the RAND SF-36, and one patient provided a follow-up radiograph. The mean score for the SRS-22 was 4.45, with satisfaction with their back management rated at 4.83 (out of 5). The mean score for the RAND SF-36 was 68% pre-treatment and 80% post-treatment. The follow-up radiograph demonstrated a sustained change of -6 degrees in the cervicodorsal Cobb angle, stabilization of the thoracic Cobb angle and sustained improvement in the apical vertebral rotation, and a +3 degree change in the lumbar Cobb angle.

DISCUSSION

The goals of this therapeutic intervention were two-fold. One goal was to address neuromuscular function, and another was to influence the biomechanical factors which may encourage curve progression.

Proprioceptive deficits and issues with balance have been reported to occur in scoliosis.[38,39] A dysponesis between the sensory input and motor feedback systems could lead to failures in the rotation-control systems.

Neuromuscular factors have been suggested to contribute to the etiology of scoliosis, and biomechanical factors to its progression.[52] This protocol utilized repeated exercise, whole-body vibration therapy, and gait therapy to influence neuromuscular function,[46-49] and utilized a system of three-dimensional x-ray analysis to determine the applied CMT, with the goal of influencing spinal biomechanics and restoring optimal sagittal alignment.

CONCLUSION

Case studies on adult idiopathic scoliosis patients offer an advantage over similar studies on adolescent populations, as they allow spontaneous regression to be ruled out as a contributing factor. While this study was a retrospective observational review lacking a control group, the results support the premise that spinal deformity is NOT irreversible.

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