The effect of night-time versus full-time bracing on the sagittal profile in adolescent idiopathic scoliosis: a propensity score-matched study

Martin Heegaard[1], Lærke Ragborg[1,2], Amy L. McIntosh[2], Megan E. Johnson[2], Martin Gehrchen[1], Daniel Sucato[2], Benny Dahl[1], Søren Ohrt-Nissen[1]

[1]Spine Unit, Dept. of Orthopedic Surgery, Rigshospitalet, København, Denmark

[2]Texas Scottish Rite Hospital for Children, USA

Background

Recent research indicates that brace treatment in adolescent idiopathic scoliosis (AIS) may induce hypokyphosis or even flat back deformity. Whether this effect differs between night-time bracing (NTB) and full-time bracing (FTB) is unknown. The current study aims to investigate the impact of NTB and FTB on the sagittal profile in AIS patients.

Methods

We retrospectively included skeletally immature AIS patients with main curves ranging from 25-45° treated with either NTB or FTB. The two cohorts were propensity-score matched on Risser stage, age, major curve size, and global kyphosis at brace initiation. Coronal and sagittal radiographic parameters were gathered at the initiation and completion of brace treatment.

Results

Two-hundred seventy patients were eligible for inclusion. The matched cohorts included 73 patients in each group. In the coronal plane, curve progression >5° was seen in 63% in the NTB group and 43% in FTB (p=0.012). Progression to >50° was

seen in 45% vs. 29% (p=0.040), respectively. The global kyphosis increased during bracing from 33±12° to 37±13° in the NTB group compared to a decrease from 32±12° to 30±12° in the FTB group (p=0.001). Ten percent (n=7) were hypokyphotic (global kyphosis <20°) post bracing in the NTB group compared with 25% (n=18) in the FTB group (p=0.016).

Conclusion

Patients treated with a NTB were statistically more likely to experience frontal plane curve progression >5° (63%) and progression to a surgical magnitude (45%) when compared to FTB patients. Despite the frontal plane curve progression, the NTB group had more normal sagittal alignment, with fewer patients exhibiting global hypokyphosis (<20°) than the FTB at the completion of bracing.

Disclosures

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