P 1-114

The Efficacy of Flexible Brace for Prevention of Progression in a Patient with Idipathic Scoliosis

Young-Bin Oh[1*], Gi-Wook Kim[1], Yu hui Won[1], Sung-Hee Park[1], Myoung-Hwan Ko[1], Jeong-Hwan Seo[1†]

Chonbuk National University Hospital, Department of Rehabilitation Medicine[1]

Background
Idiopathic scoliosis is a three-dimensional deformity of the trunk and spine, and is defined as a lateral curve of at least 10°, measured on a standing radiograph using the Cobb's method. Bracing for prevention of scoliosis progression is considered to be above 20° of Cobb's angle.

Objective
We aimed to investigate the efficacy of flexible brace (ALL LINETM) for prevention of scoliosis progression and improving lateral curvature on patient's with idiopathic scoliosis.

Methods
Eighteen patients diagnosed with idiopathic scoliosis were enrolled. The inclusion criteria were as follows: 1) idiopathic scoliosis, measured to be between 10° to 40° of Cobb's angle, demonstrated by X-ray ; 2) age between 19 and 40 years. Patients were excluded if they had any of the following: 1) serious or unstable neurological problems, 2) structural deformity of spine, pelvis, and lower extremity, and/or 3) pelvic subluxation above 1cm between both side. All participants trained 12hrs/day for 12 weeks. Height, Cobb's angle, length of spine from L5 to C7, pelvic and shoulder subluxation angle, thoracic and lumbar distance from central sacral vertical line (CSVL), visual analogue scale (VAS), and Oswestry disability index (ODI) were measured before training and after training completion. The scores at each time point were statistically compared.

Results
The paticipants showed significant improvement of Cobb's angle (30.74±1.89° to 24.96±2.11°, P <0.001) at 12weeks after bracing. In addition, length of spine from L5 to C7 was increased (41.21±0.68cm to 42.08±0.55cm), and distance from CSVL of thoracic (4.40±0.36 to 3.49±0.31, P<0.001) and lumbar (4.40±0.35 to 3.86±0.33, P=0.005) were attenuated by bracing in patients with idiopathic scoliosis. VAS (3.69±0.39 to 0.75±0.14, P<0.001) and ODI (8.44±1.22 to 2.31±0.53, P<0.001) were significantly attenuated in participants.

Conclusions
Flexible brace (ALL LINETM) has beneficial effect for prevention of scoliosis progression and improvement of lateral curvature in idiopathic scoliosis. Keywords: Scoliosis, Idiopathic, Brace, Cobb, Spine

Acknowledgment
This research was supported by a grant from the Korea Health Technology R&D Project through the Korea Health Industry Development Institute, funded by the Ministry of Health & Welfare, Republic of Korea (grant number: HI15C1529).