

POSTER PRESENTATION

Open Access

Analysis of differences in postural stability in people with adult scoliosis and non specific low back pain

L Bissolotti^{1,3*}, V Sani^{1,3}, M Gobbo^{2,3}, C Orizio^{2,3}

From 9th International Conference on Conservative Management of Spinal Deformities - SOSORT 2012 Annual Meeting

Milan, Italy. 10-12 May 2012

Background

Few papers demonstrated an impairment in postural stability control in patients with non specific low back pain (NL) [1,2]. However, it is not clear whether patients with adult scoliosis (AS) and NL can be considered a specific subgroup.

Aim

Present a study aimed to compare Postural Stability (PS) in patients with AS and NL[3].

Methods

Cotrel method was used to assess Cobb angle (CA) on plan x-ray. Using 14 markers, a two optoelectronic infrared cameras (Gemini, BTS spa, Milano, Italy) was used to perform a stabilometric test when patients were keeping a quite standing position with an eyes open trial (EOT), and eyes closed (ECT), and a distance between their feet (FD) as preferred. The Area of Reference Marker on the Ground (C7) (ARMG), Average Marker Speed (AMS) and length of the marker's trajectory on the ground (LMG) were evaluated during ST.

Results

AS-Group included 40 patients, 10 men and 30 women, with Cobb angle >15°, mean age 61.8 ± 11.5 years, BMI 23.6 ± 2.8 kg/m2. A single curve was present in 32 patients (80%). Cobb angle of primary curve averaged 27.1 $\pm11.5^{\circ}$ (range, $15-63^{\circ}$), thoracic Cobb angle averaged 25.5 $\pm22.3^{\circ}$ (range, $8-58^{\circ}$). NL-Group included 40 patients, 9 men and 31 women. Mean age 58.2 ± 10.9 years, BMI

23.9±3.2kg/m2. In AS-group, the self selected mean FD during EOT was 160.1±53.8mm, and during ECT it averaged 160.9±56.2mm (p>0.05). In NL group it was 157.5 ±53.1mm during EOT, and 154.6±51.2mm during ECT (p>0.05). No differences were noted in both conditions between the two groups (p>0.05). In AS-group, ARMG values averaged 302.6±271.6mm2 during EOT, and 577.9±728.9mm2 during ECT (p>0.05). LMG was 156.9±37.2mm during EOT, and 211.5±72.5mm during ECT (p>0.05); while the AMS was respectively 5.3±1.2mm/sec and 7.1±2.4mm/sec (p>0.05). In NL group, ARMG averaged 296.1±387.6mm2 during EOT, and 876.1±1347.8mm2 during ECT (p>0.05). LMG was respectively 176.1±62.2mm and 246.1±183.5mm (p>0.05); while AMS has been 5.5±1.9mm/sec and 9.9±9.5mm/sec (p>0.05). Romberg Coefficient (RC) was 2.3±1.9 in AS group and 2.9±2.6 in NL group (p>0.05).

Conclusions

In AS-Group, the ability to control PS with EO and EC was not different than in NL-Group. Physiotherapy program does not require more attention to PS training in AS-Group than NL-Group.

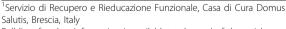
Author details

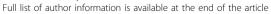
¹Servizio di Recupero e Rieducazione Funzionale, Casa di Cura Domus Salutis, Brescia, Italy. ²Istituto di Fisiologia Umana, Dipartimento di Scienze Mediche e Biotecnologie, Facoltà di Medicina e Chirurgia, Brescia, Italy. ³LARIN: Laboratorio di Ricerca Neuromuscolare e dell'Attività Fisica Adattata, Italy.

Published: 3 June 2013

References

 Ruhe A, Fejer R, Walker B: Center of pressure excursion as a measure of balance performance in patients with non-specific low back pain







- compared to healthy controls: a systematic review of the literature. Eur Spine J 20(3):358-368.
- Brumagne S, Janssens L, Knapen S, Claeys K, Suuden-Johanson E: Persons with recurrent low back pain exhibit a rigid postural control strategy. Eur Spine J 2008, 17(9):1177-1184.
- Beaulieu M, Toulotte C, Gatto L, Rivard CH, Teasdale N, Simoneau M, Allard P: Postural imbalance in non-treated adolescent idiopathic scoliosis at different periods of progression. Eur Spine J 2009, 18(1):38-44.

doi:10.1186/1748-7161-8-S1-P3

Cite this article as: Bissolotti *et al.*: Analysis of differences in postural stability in people with adult scoliosis and non specific low back pain. *Scoliosis* 2013 **8**(Suppl 1):P3.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at www.biomedcentral.com/submit

