Night-time bracing versus day-time brace for back pain in adults with scoliosis: six-month results of a retrospective controlled study

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Introduction. Adult scoliosis is sometimes associated with back pain, and severe curves can progress over time. Bracing is quite a common approach in such patients, but only a few papers are available to assess their efficacy. This study aims to test the effectiveness of six months of a custom–made brace, worn at night, in reducing pain and improving function in adult scoliosis patients compared to a prefabricated day–time brace worn 2–4 hours daily.

Methods.

Retrospective cohort study with a historical control group.

We compared a sample of consecutively recruited adult females with back pain and scoliosis treated with a custom–made TLSO night–time brace to those treated with day–time prefabricated brace.

Outcomes: Graphical rating scale (GRS), Oswestry Disability Index (ODI), Core Outcome Measures Index (COMI). Patients were evaluated at baseline and six months after they started wearing their braces.

We used two–ways ANOVA. We checked results according to the Minimal clinically important differences. We defined improvement as a change equal or greater than the MCID and we checked the association between the proportion of clinically meaningful improved patients and the brace type with chi2.

We ran a logistic regression model to see if the OR of reaching results were higher with one of the braces.

Results. The night–time TLSO group included 25 adult females, age 62.3±9.5, curve 60.4±17.7° Cobb, wearing the brace 7.2±2.2 hours per day. The day–time prefabricated group included 20 adult females, age 67.8±10.5, curve 62±13° Cobb, wearing the brace 2–4 hours a day.

Improvements were similar for both braces for back and leg pain. There was a statistically significant improvement in worst pain score in patients wearing a TLSO compared to those treated with day–time brace (F 6.32 p=0.0158) the change is significant also over time from start to end (F=20.54 p=0.000),

Considering MCID for ODI, 32% of the patients treated with TLSO improved compared to 25% in the prefabricated day–time brace group (chi2 0.26 p=0.607).

COMI total score had minimal MCID in 44% of cases in TLSO and 30% of those wearing a prefabricated day–time brace (chi2 0.93 p=0.34).

Leg pain: 15% of patients reaching MCID in the prefabricated day–time brace group compared to 8% in the TLSO group (chi2 0.55 p=0.46).

Back pain: 20% patients in the prefabricated day–time brace group compared to 4% in the TLSO group (chi2 2.88 p=0.09).

The proportion of subjects with results exceeding the MCID did not show a statistically significant difference between the 2 braces.

The logistic regression model showed that the odds of improvement were not different between the two braces. COMI total results were 56% higher in patients treated with TLSO (p=0.34 95%CI 0.2–1.9). ODI results were 22% higher in patients treated with TLSO p=0.61 95%CI 0.2–2.6.

Discussion Night–time bracing shows interesting positive effects on chronic low back pain secondary to Scoliosis. The impact is like a day–time brace worn for 2–4 hours. Not all the parameters improved and not all the patients did, but this approach seems worth exploring as a further option for these patients.