



**P5**

**BRACE ASSOCIATED TO SPECIFIC EXERCISES IS ABLE TO IMPROVE SPONDYLOLISTHESIS IN GROWING PATIENTS**

M. Pitruzzella, S. Donzelli, F. Zaina, S. Negrini

**Background**

The actual evidence concerning effective treatment for spondylolisthesis is really sparse and relevant data able to help clinicians for clinical decision making are lacking. This is why a common path among experts in spinal disorders has not been defined yet, and the best approach is still to be discovered. Even though it is a quite rare condition, with an incidence comprised between 4% and 6% in growing subjects, it can be also associated to other deformities of the growing spine like scoliosis and hyperkyphosis, thus affecting the clinical approach. Spondylolisthesis is frequently discovered occasionally; in other cases, its first symptom is back pain. It has been demonstrated a risk of progression during growth, this is why a conservative treatment is recommended by some authors. To better understand how to manage with these kind of diseases, observational studies are required.

**OBJECTIVE**

The main aim of the present study was to evaluate the short term effects of conservative treatment (brace and exercises) in a population of growing subjects affected by spondylolisthesis.

**Methods**

*Participants*

The selected population came from a prospective collection of clinical data, the included patients fulfilled the following inclusion criteria: spondylolisthesis as main diagnosis, at least one year of follow-up, with available clinical data of at least three visits; a minimum of two Lateral X-rays at start and after one year; age below 18 years.

Outcomes considered: the percentage of the olisthesis according to the Meyerding Classification, and the SRS-22 mean score for pain domains, were compared between start and after one year of treatment.

*Statistical analysis:* considering the normal distribution of data a paired double-tailed t-test was performed, with alpha set at 0.05.

## **Results**

In the sample considered, 49 patients were treated with braces (23 females, 26 males) and 10 (6 females, 4 males) treated with specific exercises only. The mean age was 12.3 (SD=2.9). Among brace treated subjects the 49% improved after one year of therapy, 47% were stable and only the 4% worsened more than 5%. The mean percentage of the spondylolisthesis at short term follow-up was 14.3 and resulted significantly improved from start (Mean at start 19.3 SE 0.99 SD 6.92, CI 95% 17.3-21.3; Mean percentage at short term 14.6 SE 0.88 SD 6.19 CI 95% 12.8-16.3;  $p < 0.0000$ ). Among not brace patients the differences between start and after one year of treatment did not result statistically significant ( $p = 0.41$ ). For what concern the pain domain average scores at the SRS -22 any statistically significant difference was found ( $p = 0.62$ ).

## **Conclusion**

This study shows that the combination of activity restriction, specific exercise and bracing have a high rate of improvement or stabilization of the spondylolisthesis at one year of follow-up, in growing subjects. Additional studies are needed to support these results and to clarify the controversy regarding the most effective therapy for these patients.