

SCOLIOSIS-SPECIFIC EXERCISES REDUCE BRACING RATE IN ADOLESCENTS WITH IDIOPATHIC SCOLIOSIS. END GROWTH RESULTS OF AN EVERYDAY CLINICS' PROSPECTIVE COHORT CONTROLLED STUDY

Stefano Negrini^{1,2}, Sabrina Donzelli³, Alessandra Negrini³, Silvana Parzini³, Michele Romano³, Fabio Zaina³

1. *Clinical and Experimental Sciences Department, Brescia University, Brescia, BS, Italy*

2. *IRCCS Fondazione Don Gnocchi, Milan, MI, Italy*

3. *ISICO, Milan, MI, Italy*

Introduction. Adolescent idiopathic scoliosis (AIS) is a three-dimensional deformity of the spine and trunk. Recently, 3 randomized controlled trials (RCTs) showed the efficacy of specific exercises for treating AIS, prescribed with the aim to avoid bracing or reaching a spinal curvature of 30° Cobb. To check the generalizability of these results, a large observational cohort study in everyday clinics is needed. The aim of this paper is to verify the effectiveness of specific exercise for AIS in everyday clinics to avoid bracing or reaching a curvature measurement of 30°.

Methods. Design: an observational and controlled cohort study nested in a prospective database started in March 2003. Setting: outpatient tertiary referral clinics. Participants: consecutive patients from start of the database to September 30, 2010. Inclusion criteria: IS; Risser sign 0-2; 11° to 20° Cobb; age 10 years or older; first evaluation. Exclusion criteria: consultations only; immediate prescription of a brace. Groups: physiotherapeutic specific scoliosis exercise (PSSE), according to the scientific exercise approach to scoliosis (the SEAS school); control (CON); usual physiotherapy (UP). End-of-treatment (EOT): medical prescription, bracing, Risser sign 3. Failures: bracing for scoliosis; EOT measurement above 30°. Statistics: intent-to-treat (ITT) and efficacy (EA) analyses were performed; relative risk (RR), number needed to treat (NNT), and 95% confidence interval (95%CI) have been calculated.

Results. Of 327 patients, 34 (10.4%) were excluded due to a prescription of bracing at the first evaluation. We included 145 PSSE, 95 UP, 53 CON with no differences at baseline. Physicians prescribed bracing without differences among the groups. Intent-to-treat: exercises RR 0.73 (0.58-0.92) with NNT 5.7 (3.1-33.0) ($P < .01$). Efficacy analysis: exercise RR 0.68 (0.50-0.93) with NNT 5.5 (2.9-46.0) ($P < .05$); PSSE RR 0.66 (0.48-0.90) with NNT 5.9 (3.4-20.7) ($P < .01$); UP were not statistically significant.

Conclusion. PSSE reduces bracing rate in AIS not only during RCTs but also in everyday clinics. Provided that patients accept treatment, PSSE (SEAS school) is more effective than UP. Specific exercises are another tool to be included in the therapeutic toolbox of the AIS treatment community.