Specific exercises reduce the need for bracing in adolescents with idiopathic scoliosis: a practical clinical trial.

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Abstract

BACKGROUND: In an ideal experimental setting, 2 randomized controlled trials recently showed the efficacy of physiotherapeutic scoliosis-specific exercises (PSSEs) for adolescents with idiopathic scoliosis (AIS). Now large observational studies are needed to check the generalizability of these results to everyday clinical life.

OBJECTIVE: To explore the effectiveness of PSSEs for avoiding bracing or progression of AIS in everyday clinics.

METHODS: This was a longitudinal comparative observational multicenter study, nested in a prospective database of outpatient tertiary referral clinics, including 327 consecutive patients. Inclusion criteria were AIS, age ≥10 years old at first evaluation, Risser sign 0-2, and 11-20° Cobb angle. Exclusion criteria were consultations only and brace prescription at baseline. Groups performed PSSE according to the SEAS (Scientific Exercise Approach to Scoliosis) School, usual physiotherapy (UP) and no therapy (controls [CON]). End of treatment was medical discharge, Risser sign 3, or failure (defined by the need for bracing before the end of growth or Cobb angle > 29°). The probability of failure was estimated by the risk ratio (RR) and 95% confidence interval (CI). The number needed to treat was estimated. Statistical analysis included intent-to-treat analysis, considering all participants (dropouts as failures), and efficacy analysis, considering only end-of-treatment participants. Propensity scores were used to reduce the potential effects of confounders related to the observational design.

RESULTS: We included 293 eligible subjects after propensity score matching (SEAS, n = 145; UP, n = 95; controls, n = 53). The risk of success was increased 1.7-fold (P = 0.007) and 1.5-fold (P = 0.006) with SEAS versus controls in the efficacy and intent-to-treat analyses, respectively, and the number needed to treat for testing SEAS versus controls was 3.5 (95% CI 3.2-3.7) and 1.8 (95% CI 1.5-2.0), respectively. The success rate was higher with SEAS than UP in the efficacy analysis.

CONCLUSIONS: SEAS reduced the bracing rate in AIS and was more effective than UP. PSSEs are additional tools that can be included in the therapeutic toolbox for AIS treatment.

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