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ADOLESCENT IDIOPATHIC BRACING SUCCESS RATESINFLUENCED BY TIME IN BRACE: COMPARATIVEEFFECTIVENESS ANALYSIS OF THE BRAIST AND ISICO COHORTS

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Background: Studies of bracing effectiveness have consistently shown different outcomes in different countries. These differences could be due to sample characteristics or treatment approaches such as brace design, standard weaning protocols or concomitant physical therapy.
Purpose of the study: To compare predictors and bracing outcomes in prospective datasets from the BrAIST study and the ISICO.
Materials and Methods: Sample: Braced patients, age 10–15, Risser\3, Cobb angle 20°–40°, observed to Cobb angle ofC40° and/or Risser 4.
Comparators: Bracing per BrAIST (TLSO) and ISICO protocol (SPoRT rigid braces with or without SEAS exercises with cognitive-behavioral support). Baseline characteristics (sex, age, body-mass index (BMI), Risser grade, Cobb angle, and curve pattern) and average hours of wear per day. Other differences between programs(e.g. SEAS participation, type of brace, structured weaning protocol)were captured by a variable named ,,SITE.''
Outcome: Treatment failure (C40 degrees before Risser 4).
Statistical analysis: Analyses comparing pre-bracing characteristics, followed by analyses of the relationship between risk factors, treatment components and outcomes within and between the cohorts. Logistic regression was used to determine the factors associated with the outcomes in the combined cohort. The final model was chosen based on Akaike information criteria.
Results: 157 BrAIST and 81 ISICO subjects were included. The groups were similar at baseline. The average wear time was 18.31 in the ISICO and 11.76 h in the BrAIST cohorts. 31% of the ISICO cohort engaged in the SEAS exercises, and only 1 had a treatment failure, so the contribution of SEAS cannot be determined with thesedata.12% of the ISICO and 39% of the BrAIST cohorts had treatment failure. Age, Risser, Cobb angle and a thoracic apex were significant predictors of failure in both groups. The first logistic model included baseline factors plus the SITE variable. SITE was significantly related to failure (OR 0.19), indicating lower odds of failure with ISICO relative to BrAIST approach. In a second model including both SITE and wear time, SITE was not significant, indicating the difference in outcomes was primarily explained by differences in wear time, and not by other treatment factors. In the final model, the adjusted odds of failure were higher in boys (OR 3.34), and those in the lowest 5th percentile of BMI (OR9.83); the odds increased with the Cobb angle (OR 1.23), and decreased with age (OR 0.41) and hours of wear (OR 0.86).
Conclusion: This study does corroborate previous studies providing strong evidence for wear time in preventing significant curve progression in high risk AIS patients. The ISICO protocol proved to be superior in making patients wear the brace, and consequently deter-mining final results. Future studies are necessary to determine the independent effects of different components of treatment.
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