Format: Abstract

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AIS Bracing Success is Influenced by Time in Brace: Comparative Effectiveness Analysis of BrAIST and ISICO Cohorts.

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Abstract

STUDY DESIGN: Comparative effectiveness study OBJECTIVE.: To evaluate factors leading to higher percentage of **brace** failures in a cohort of North American patients with **AIS** relative to their peers in Italy.

SUMMARY OF BACKGROUND DATA: Studies of **bracing** in USA have shown worse outcomes than studies from European centers, possibly due to sample characteristics or treatment approaches.

METHODS: Sample: Braced patients, age 10-15, Risser< 3, Cobb 20-40°, observed to Cobb ≥40° and/or ≥Risser 4 selected from prospective databases. Comparators: **Bracing** per **BrAIST** (TLSO) and **ISICO** protocol (SPoRT braces with or without SEAS exercises). Baseline characteristics (sex, age, BMI, Risser, Cobb, curve type) and average hrs of **brace** wear/day. Differences in programs (e.g. SEAS, type of **brace**, weaning protocol) were captured by a variable named "SITE."

OUTCOME: Treatment failure (Cobb≥40 before Risser 4).

STATISTICS: Comparison of baseline characteristics, analyses of risk factors, treatment components and outcomes within and between **cohorts** using logistic regression.

RESULTS: 157 **BrAIST** and 81 **ISICO** subjects were included. **Cohorts** were similar at baseline but differed significantly in terms of average hrs of **brace** wear: 18.31 in the **ISICO** vs. 11.76 in the **BrAIST** cohort. 12% of the **ISICO** and 39% of the **BrAIST** cohort had failed treatment. Age, Risser, Cobb and a thoracic apex predicted failure in both groups. SITE was related to failure (OR =0.19), indicating lower odds of failure with **ISICO** vs **BrAIST** approach. With both SITE and wear **time** in the model, SITE loose significance. In the final model, the adjusted odds of failure were higher in boys (OR=3.34), and those with lowest BMI (OR=9.83); 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:

Treatment at the **ISICO** resulted in a lower failure rate, primarily explained by longer average hours of **brace** wear.

LEVEL OF EVIDENCE: 3.

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