

Operative Treatment of Adult Spinal Deformity (ASD) Improves Disease State and Physical Function Regardless of Age and Deformity Type, While Nonoperative Treatment Has No Impact; A 2 Year Prospective Analysis

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Introduction

Little data exists comparing the impact of operative (OP) and nonoperative (NON) treatment on the disease state for ASD patients. The purpose of the present study was to evaluate OP and NON treatment to restore ASD patients to normative physical function levels and identify disease state correlates for different deformity types using SF-36v2 Health Survey (SF-36) scores.

Methods

Multicenter, prospective analysis of consecutive ASD patients. Inclusion criteria: no prior spine surgery, age>18years, ASD, and minimum 2yr follow-up. ASD evaluated according to 1) type of scoliosis and 2) severity of sagittal malalignment. Patients divided into OP and NON. Baseline and 2yr SF-36 physical component (PCS) and mental component (MCS) scores were compared to US normative and disease-specific values and reported as norm-based values (NBS) and minimal-clinically-important-difference (MCID).

Results

302/497 (61%) patients met inclusion criteria. Baseline PCS for all patients improved (39.8-43.6, 1 MCID) at 2yrs, however values remained <25th percentile for US normative PCS values (45.4). Baseline OP (34.5) PCS was lower than NON (44.6;p<0.05). At 2yrs OP and NON PCS values were similar (43.4vs.43.8; p>0.05). OP improved 3 MCID values (9 NBS points) at 2yrs, whereas NON remained the same. Baseline OP disease state correlates corresponded to one MCID worse than amputee patients (PCS=38.9), which improved to similar PCS disease state values as diabetes (PCS=41.1) and hypertension (PCS=43.96). OP demonstrated PCS improvement of minimum 2 MCID values (6 NBS points; range 6-12; p<0.05) for all deformity types whereas PCS for NON remained the same for all deformity types at 2yrs.

Learning Objectives

By the conclusion of this session, participants should be able to:

1) appreciate that ASD patients demonstrate severe disability compared to US norms 2) Understand that OP treatment provides improvement whereas NON treatment does not improve disease state regardless of deformity type and 3) that PCS values still remain below population norms despite MCID improvements in the operative group.

Conclusions

ASD patients demonstrate severe disability compared to US norms. OP treatment provides improvement for all deformity types whereas NON treatment does not improve disease state regardless of deformity of type. Despite MCID improvement in all deformity types for the OP group, PCS values remain below population norms at 2yr follow up.