

Abstracts

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Paper #1

Health Related Quality of Life and Physical Activity after Multiple-surgeries in Patients with Early Onset Scoliosis

Ragnhild Susanne Molland, Jens Ivar Brox, Britt Stuge, Inger Holm, Rolf Bjarne Riise, Thomas Johan Kibsgård



Summary: We measured health related quality of life (HRQOL) and physical activity after multiple-surgeries in patients with early onset scoliosis (EOS)

Hypothesis: We hypothesized that these treatments would decrease children's activity and well-being.

Introduction: Severe EOS is a heterogenic group of patients, which may require multiple-surgeries during childhood. Surgical and radiological outcomes say little about the well-being of the patients. Our aim was to measure HRQOL and physical activity in children with EOS treated with multiple-surgeries, including predictors of HRQOL outcomes.

Methods: Daily activity was measured by a waist bearing accelerometer in children with independent walking ability. All participants answered question regarding habitual physical activity. HRQOL was measured by use of

Early Onset Scoliosis 24-item Questionnaire (EOSQ-24) (<16 years) or Scoliosis Research Society 22-item Questionnaire (≥16 years). Likelihood-ratio test and multivariate linear regression created the prediction model.

Results: Thirty-nine patients participated. The mean age was 13 years, 41% were boys and 54% had undergone graduation. Results are presented in table 1. Accelerometer data showed similar amount of activity as healthy, Norwegian peers, but at a lower intensity. All children of idiopathic or congenital etiology were independent walkers, and reported highest total EOSQ-24 score and self-reported physical activity. Among children of syndromic or neuromuscular etiology, EOSQ-24 total score decreased with decreasing walking abilities. Syndromic or neuromuscular scoliosis children with reduced walking abilities reported lowest level of activity, also lower than children in same etiology groups with independent or without walking abilities. Idiopathic or congenital etiology with independent walking abilities, and less levels of spine fixation explained 67% of EOSQ-24 total score variance ($p < 0.01$)

Conclusion: HRQOL and physical activity after multiple EOS surgeries was affected by children's walking abilities and type of etiology. Children with independent walking abilities or congenital or idiopathic scoliosis had the best outcomes. Together with less levels of spine fixation, these variables predicted better HRQOL.

Author Affiliations and Disclosures: Ragnhild Susanne Molland, Oslo University Hospital; Jens Ivar Brox, Oslo University Hospital; Britt Stuge, Oslo University Hospital; Inger Holm, Oslo University Hospital Rolf Bjarne Riise, Oslo University Hospital; Thomas Johan Kibsgård, Oslo University Hospital

Paper #2

The Effect of Medical Comorbidities on Subdomain Scores of the Early Onset Scoliosis Questionnaire (EOSQ) Before Treatment

Brandon Ramo, Anna McClung, Chan-Hee Jo, Paul Sponseller, Matthew Oetgen



Summary: This study analyzes the medical variables responsible for EOSQ subdomain score variation in prospectively-collected database of heterogeneous early onset scoliosis (EOS) patients to determine the effect of medical conditions on health-related quality of life (HRQOL). Certain medical comorbidities like presence of developmental delay, non-ambulation, tracheostomy and supplemental nutrition correlate to lower EOSQ domain scores. Additionally, multi-variate analysis indicates that C-EOS etiology designation is an independent predictor of most EOSQ domain scores.

Hypothesis: Baseline EOSQ scores in a heterogeneous group of EOS patients will be affected by their pre-existing medical comorbidities.

Introduction: The EOSQ is a disease-specific HRQOL measure which has been validated by its originators with a goal of eventually comparing EOS treatments. We sought to determine any medical comorbidity variables which might predict differences in EOSQ scores and therefore must be accounted for in comparative studies.

Methods: Patients were analyzed for ambulatory status, presence of pulmonary, cardiac, renal, GI, developmental delay, and neurologic

Table 1. Health Related Quality of Life and Physical Activity after Multiple-surgeries in Patients with Early Onset Scoliosis

	Mean EOSQ-24 Total Score (95%CI)	Mean Physical Activity (counts/min) (95%CI)	Mean self-reported Physical Activity (h/week) (95%CI)
Idiopathic or Congenital patients, Independent walkers (N =21)	74 (68, 80)	486 (386, 586)	4.4 (3, 6)
Neuromuscular or Syndromic patients, Independent walkers (N=5)	58 (32, 84)	423 (307, 540)	2.2 (-1, 6)
Neuromuscular or Syndromic patients, reduced walking abilities (N=7)	48 (37, 59)	-	0.9 (-1, 2)
Neuromuscular or Syndromic patients, non- walking abilities (N=6)	43 (31, 55)	-	1.7 (0, 3)