

Predictors of Surgical Treatment and Postoperative Complications in the Pediatric Patient With Isolated Tethered Cord Syndrome

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Introduction

Isolated tethered cord syndrome (iTCS) may be diagnosed in a symptomatic patient with a low-lying conus caused by a tight and/or fatty filum. Its incidence, patient characteristics, and outcomes after treatment with untethering surgery have been described largely through single-center studies. Indications for and the proper timing of surgery remain a subject of debate.

Methods

Utilizing the Optum Insight dataset, we examined all pediatric patients in a large nationwide healthcare network with an International Classification of Disease (ICD) diagnosis code of tethered cord between 2001 and 2014 (n=3,218). Using a combination of ICD and Current Procedural Terminology (CPT) codes, we identified iTCS diagnoses and untethering procedures. We examined demographic and clinical predictors of surgical intervention (n=482) as well as postoperative complications.

Results

The incidence of iTCS in children over the entire study period was similar in females and males with incidence rates of diagnosis of 13 and 11 cases per 100,000 insured patient-years, respectively. Factors that increased the odds for surgical untethering included living in the West census region (unadjusted OR 2.335 when compared to New England census region, p-value<0.001) and the presence of a syrinx (unadjusted OR 2.189, p-value<0.001). Of note, the presence of a Chiari malformation and gender did not affect the odds of undergoing surgery. In the surgical group, 3-6 year olds demonstrated the lowest odds of sustaining post-surgical complications (unadjusted OR 0.297 when compared to patients younger than 1 year of age, p-value=0.0174).

Conclusions

Analysis of a large nationwide healthcare network showed higher odds of untethering procedures for pediatric iTCS patients with a syrinx as well as significant regional variation. The 3-6 year age range was associated with lower surgical morbidity compared to older or younger patients.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Understand the significance of large-database analysis in studying rare diseases, 2) Identify predictors of surgery in children with isolated tethered cord syndrome, 3) Describe the potential ideal age for surgical untethering in patients with isolated tethered cord syndrome.

References

Tethered cord syndrome in children: a review
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