The Relationship of Obstructive Sleep Apnea and Sickle Cell Disease Severity in Children

Abstract Information

Presentation Preference: SNRS Student Poster Presentation

Abstract Categories:
  Interest Group: Minority Health
  Thematic Areas: Child & Adolescent Health

Introduction:

Children are at risk of developing obstructive sleep apnea (OSA) due to physiological tonsillar hypertrophy which decreases airway size. Sickle cell disease (SCD), too, is associated with enlarged tonsils, further increasing the risk of OSA. Cyclic nocturnal obstructive events in OSA cause hypoxemia and inflammation, states that contribute to vasoocclusion and increased SCD severity. Thus, co-occurrence of these diseases may exacerbate SCD severity.

Method(s):

This pilot study uses a retrospective case series design to examine whether children with SCD aged 2 to 19 years demonstrate differences in SCD severity between those having no vs mild vs severe OSA confirmed by polysomnography. SCD severity is measured by number of medical contacts for painful crises and acute chest syndrome and a 14-item Disease Severity Index developed to predict risk of death among children and adults with SCD. The sample includes consecutive children with SCD referred for polysomnography at one children's hospital (n = 50) between 2003 and 2008. This study further examines post- polysomnography changes in SCD severity between children with OSA who are treated with adenotonsillectomy versus those not treated.

Results:

Results are pending completion of data collection. Analyses will include descriptive statistics, and 2-way and repeated-measures ANOVAs to compare disease severity between OSA groups (no/mild/severe), and to compare groups (adenotonsillectomy vs no treatment) on disease severity pre- and post-polysomnography. It will further employ correlation and Poisson regression to examine associations of specific polysomnographic parameters to SCD severity.

Discussion:

Studying interactions of diseases with serious health consequences can contribute to improved outcomes for children. Results of this study may demonstrate the importance of screening for OSA in children, particularly those with SCD, and the importance of treating OSA in a co-morbid disease with serious consequences.
Limitations include polysomnography referral bias, small sample size, single data collection site and missing medical record data.

Research Completed : Yes
Abstract History: NA
Financial Disclosure: Have a financial arrangement or affiliation with commercial companies whose products may be mentioned in this material? No
FDA Disclosure: Cleared: Yes
Non-Exclusive License: Accepted Terms: Yes
Submitted By: vroge001@umaryland.edu