Predictors of factors of failure of DISE (Drug-induced sleep endoscopy) directed adenoidectomy &/or tonsillectomy in children with sleep disordered breathing (SDB)

Thesis

Submitted for partial fulfillment of the Master degree in

Otorhinolaryngology

By

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SUMMARY

Pediatric Sleep disordered breathing (SDB) has an estimated prevalence of 4-11% in children. Those affected (especially severe form; obstructive sleep apnea) may suffer from daytime somnolence, academic difficulties, behavioral and neurocognitive problems, enuresis, cardiovascular complications, poor growth, and metabolic disorders. Additionally, children with SDB have been shown to have significant reductions in overall and disease-specific quality of life.

Adenotonsillar hypertrophy is recognized as the most significant contributor to SDB in otherwise healthy children. Thus, adenotonsillectomy (AT) is first-line therapy for pediatric SDB, typically resulting in resolution of symptoms in the majority of affected children, improved respiratory sleep parameters, and better quality of life.

However, several studies have shown that anywhere from 20–40% of children may have some degree of persistent sleep disordered breathing despite undergoing AT.

An attended, in-laboratory, nighttime PSG remains the gold standard for diagnosis of OSA both before and after AT; however, it does not provide information on the site of obstruction, direct further therapies, or predict which children would benefit from surgical and/ or medical interventions for persistent OSA.

Croft and Pringle first described “sleep nasendoscopy,” for use in adults and children, in the early 1990s. The name was changed to “drug-induced sleep endoscopy” (DISE) by Kezirian and Hohenhorst in 2005 to better reflect the key elements of the procedure. This technique involves assessment of the upper airway, using a flexible endoscope, while patients are in a pharmacologically-induced sleep-like state.

DISE has been shown to be safe, DISE is now routinely used to assess for site(s) of upper airway obstruction after AT in children; it is also frequently used to

assess children with complex upper airway disorders. Ideally, DISE is used to identify a surgical target or targets and allows for intervention(s) that alleviate obstruction. Very little, however, has been published regarding pediatric DISE-directed surgical outcomes in surgically naïve patients without any associated syndromes.

This study aims to predict factors of failure that cause persistent sleep disordered breathing in children after adenoidectomy &/or tonsillectomy using DISE variables.

In this study, it was found that about 19% of children show treatment failure and persistence of symptoms postoperatively. According to the results that show obese, asthmatic, children with allergic rhinitis are more liable to treatment failure after AT.

In this study, it was found that Several DISE findings can independently predict AT treatment failure, including degree of endoscopic rhinitis score (ERS) , inferior turbinate hypertrophy, the presence of DNS, tongue base collapse, lingual tonsil hypertrophy, pharyngeal collapse and occult laryngomalacia. Upper airway obstruction is multiple and several factors are implicated in persistence of SDB after AT according to DISE variables.

DISE findings may allow for an individually tailored treatment and may be helpful to decide which patients may benefit from treatment that is different from routine adenotonsillectomy. DISE allows for localization of sites of upper airway obstruction, improved surgical planning, elimination of unnecessary procedures, and improved surgical outcomes.