Pre-Operative Polysomnography Before Cleft Palate Repair – Is it Indicated in Severe Robin Sequence?

Jerry W. Chao M.D., Michael J. Boyajian M.D., Benjamin Mitchell B.S., Gary F. Rogers M.D., Albert K. Oh M.D.

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Purpose: Robin sequence patients have higher rates of respiratory insufficiency and airway obstruction after palatoplasty. Pre-operative polysomnography (PSG) has been proposed as an effective screening tool to reduce airway complications following palatoplasty by identifying high risk candidates. In this study, we seek to further elucidate the value of pre-palatoplasty PSG in this group of patients.

Methods: A retrospective review of Robin sequence patients undergoing palatoplasty was performed. Patients were divided into those who underwent pre-palatoplasty PSG and non-PSG groups. Pre-operative and peri-operative variables were recorded, including respiratory data on desaturations and supplemental oxygen requirement. Major airway complications were considered re-intubation, or post-operative re-admission/ED visit for respiratory distress.

Results: Thirty-nine patients were studied. Eleven had pre-palatoplasty PSG (group 1), and 28 did not (group 2). Group 1 had higher rates of pulmonary (45% vs 0%, p=0.000049) and central nervous system (36% vs 7%, p=0.008454) co-morbidities, and higher severity Laberge grade (2.36 vs 1.85, p=0.03), despite similar rates of acute operative airway management in infancy. Average apnea-hypopnea index (AHI) in group 1 was 10.4 prior to palatoplasty. Group 1 had palate closure at a later age (11.5 vs 9.8mo, p=0.0215). Hospital length of stay and weight did not differ between the groups. Group 1 had higher rates of post-operative desaturations <90% (64% vs 11%, p=0.000659) and requirement for supplemental oxygen (82% vs 21%, p=0.000486), however there was no difference in major airway complications (0 vs 11%, p=0.258).

Conclusions: Selective pre-palatoplasty PSG may reduce the incidence of major airway complications in Robin sequence patients, especially in those with concomitant pulmonary or CNS co-morbidities or higher grade Robin sequence.