Resident and Attending Tube Placement: Is there a Difference?
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Abstract

Objective: To determine if there is a difference in patient outcomes between resident and attending placed ventilation tubes.

Methods: Using pediatric patients who underwent tube placement between 2003 and 2010 at a tertiary referral center were reviewed. Patients served as self-controls, with the resident and attending placed tubes being performed in the same ear. Level of training, car, age, patient age, operative findings, and findings at first follow up were recorded.

Results: Of 1,488 pediatric patients, 898 met inclusion and exclusion criteria. 35% were male and residents preferentially operated on the left ear (86%). 160 patients did not follow up in the first 10 weeks. There was no significant differences between attending and resident operated ears with respect to operative findings (p=0.69), or findings at first follow up (p=0.33). There was no significance for each operative finding tube erosion (p=0.32), blocked tube (p=0.13), otitis media (p=0.82), and patient tube (p=0.09). Comparing the PGY2 residents to the attending also failed to reveal significant differences (p=0.39), with a power of greater than 80%.

Conclusion: Differences between tube outcomes between resident and attending placed ventilation tubes were not found to be statistically significant. This suggests that placement of ventilation tubes by resident surgeons can be performed in a safe manner without affecting patient safety or patient outcomes.

Introduction

Resident education and training is an area of increasing scrutiny in the United States, especially amongst the surgical specialties. Residents are required to demonstrate that they have been trained in key procedures to ensure that residents are not only being adequately trained but also that they are being trained in a similar fashion across the country. Currently, this occurs through keeping case logs and ensuring that a sufficient number of cases have been performed. The future, however, is to attempt to better demonstrate competency with the specific procedure. 1

In addition to the need to maintain resident education, there is also increasing importance over quality metrics, patient outcomes and complications. As such, it is important to demonstrate that resident training does not adversely affect the patient. Using myringotomy and tube placements, this research aims to demonstrate whether or not there is a difference in outcomes between resident and attending performed procedures.

Methods

This research was performed at a tertiary care referral center with the approval of the Institutional Review Board. The study was performed in a retrospective fashion with a matched case control design. The patient population consisted of pediatric patients who underwent tympanostomy tube placement between 2003 and 2010 by a single fellowship trained pediatric otolaryngologist (senior author, MC). Patients were excluded if the operative report indicated that only a single tube was placed, or if both tubes had been placed either by the senior author or by the resident. Those patients where one tube was placed by a resident and one by the senior author comprised the patient population.

Each patient served as their own control with the case being the resident operated ear and the control being the attending operated ear. Data was collected from the chart regarding age at time of tube placement, gender, indication for tube placement, procedure (s) performed, operative findings, year of resident postgraduate training. Additionally, information was obtained on the otoscopic findings and tympanograms at the time of first follow up. P values of less than 0.05 were considered significant.

There were no significant findings for any of the post operative myringotomy tube findings. Comparing the PGY2 resident to the attending placed tubes using tests of marginal homogeneity also failed to reveal significant differences in the outcomes recorded at the first follow up visit (p=0.30).

Results

A total of 1,488 pediatric patient charts were reviewed, of which 898 met inclusion and exclusion criteria. The average age of a patient was 3.98 with the majority of patients between 1 and 3 years of age (51%). The majority of resident performed tubes were performed by residents in their second year of training (p=0.73). 39% were male and residents preferentially operated on the left ear (86%). 19.7% (n=160) did not follow up within 10 weeks of the surgery. Table 1 lists the operative findings and post operative outcomes.

Looking at the distribution of complications over the calendar year, no significant findings could be identified, including the use of chi square testing (p=0.84). Using tests of marginal homogeneity amongst the matched populations, there were no significant differences between attending and resident operated ears with respect to operative findings (p=0.09), or findings at first follow up (p=0.33).

Specifically related to ventilation tube placement, Isaacson describes the use of a six sigma approach towards resident tube placement with a goal of lowering complication rates. 2 Other possible innovations on the horizon to improve tympanostomy tube training include the use of simulators and a skills lab. 3

Conclusions

Our study demonstrates similar outcomes amongst resident and attending placed tubes with no statistically significant differences found between the two matched populations. Additionally, the rate of complications in our population is similar if not lower than the percent complications reported in the literature. This suggests that tympanostomy tube insertion is a procedure that can be safely performed by residents under attending supervision without affecting patient outcomes.

Similar research methodology can be applied to other procedures in otolaryngology to compare resident and attending outcomes.

References