Antibiotic Stewardship in Pediatric Head and Neck Surgery

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Introduction

- Empiric surgical antibiotic prophylaxis (SAP) is frequently used in Pediatric Otolaryngologic surgery.
- SAP is used prevention of surgical site infections, but due to the growing incidence of antibiotic resistance, empiric use has led to poorer surgical outcomes[1].
- While antibiotic use is recommended for clean-contaminated procedures due to the violation of the aerodigestive tract, not recommended in clean procedures under most conditions[2].
- Many studies have been conducted regarding perioperative antibiotic use in the adult population; however, there are limited studies regarding the pediatric population[3].
- This study was designed to evaluate rates of perioperative antibiotic administration and compare surgical site infection rates among clean head and neck surgical procedures in pediatric patients who received antibiotic prophylaxis to those who did not.

References

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3. Yalamanchi P, Parent A, Thorne M. Optimization of delivery of pediatric otolaryngology surgical antibiotic prophylaxis. Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery. 2020;163(2):275–279.

Methods

- A retrospective review was undertaken to identify all clean head and neck surgical procedures performed at Children's Hospital of New Orleans between 2014-2024.
- EPIC SlicerDicer™ was used to identify patients between the 0-21 years who underwent clean head and neck surgeries over a ten-year period.
- Each chart was reviewed for perioperative antibiotic administration, and postoperative surgical-site infection.
- Two SlicerDicer sessions were created, one being a control group without antibiotic treatment, and the other being the study group that received intraoperative antibiotic dose.
- Rates of surgical site infection were compared between the control and study groups.
- Patients were excluded if active infection at time of surgery or clean-contaminated procedure were performed.
- Exact Binomial proportion confidence intervals were obtained, and groups were compared for infection rates using Chi-square test.

Results

- A total of 99 patients were identified for the control group, while 93 patients were included in study group.
- In the control group, the infection rate was determined to be 3.03%, with 95% CI = (0.0063, 0.086).
- In the study group, the infection rate was found to be 0 with 95% CI = (0, 0.0389).
- There was no statistically significant difference noted between each group when compared using the Chi-square test (p = 0.2468).

Results

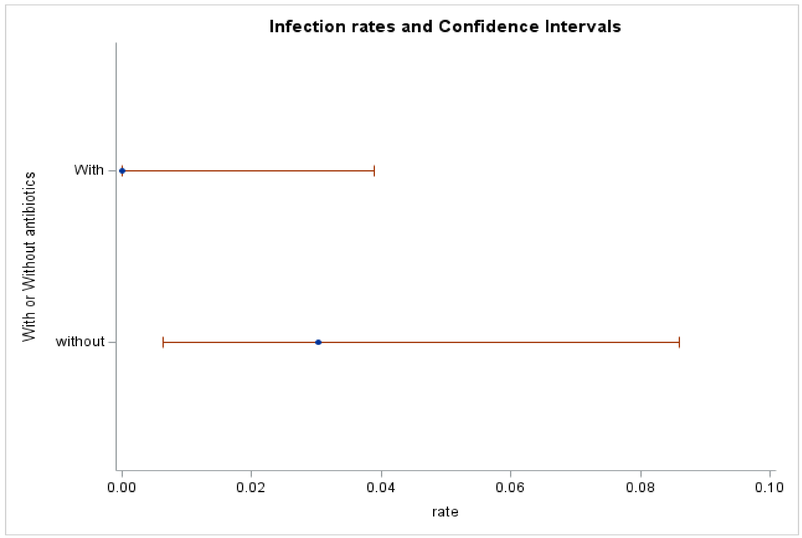

Figure 1. A plot depicting the infection rate and corresponding confidence interval.

Conclusion

Empiric administration of perioperative antibiotics has been significantly curtailed in adult clean head and neck surgical procedures; however, this practice is more varied in the pediatric population. There are no current pediatric studies to guide evidence-based antibiotic prophylaxis. This study demonstrates there is no statistically significant difference between each group, and that empiric perioperative antibiotic treatment does not seem to impact the development of surgical-site infection in clean head and neck surgeries among pediatric patients. Antibiotic stewardship is essential to limit unnecessary antibiotic exposure and prevent further development of global antibiotic resistance.