

[GA1-42] Nausea and Vomiting Post Cochlear Implant: Efficacy of Ondansetron vs. Promethazine with and without Dexamethasone: A Sole Surgeon Randomized Double-Blinded Pediatric Study

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**BACKGROUND:** Patients who undergo Cochlear implantation are considered to be at high risk for postoperative nausea and vomiting (PONV) with a reported incidence of 42.8%. <sup>1</sup> It is recommended that children with a moderate to high risk for PONV receive a combination of therapy with two or three prophylactic antiemetics from different antiemetic drug classes.<sup>2,3</sup> Dexamethasone has been found to be efficacious and is frequently used despite the fact that its mechanism of action remains to be clarified.<sup>4-6</sup> We conducted this prospective, randomized, double-blinded study of PONV on pediatric patients with preoperative imaging (CT and/or MRI) documentation of normal inner ear architecture, undergoing elective cochlear implant by a sole surgeon for severe-profound hearing loss. The purpose was to determine efficacy of promethazine and ondansetron in controlling early PONV and to assess the influence of dexamethasone when used with promethazine or ondansetron for the treatment of PONV in this patient population.

**METHODS:** Forty-four pediatric patients (20 males, 24 females) were randomized to one of four groups: (A) Promethazine only (N=10); (B) Promethazine with dexamethasone (N=11); (C) Ondansetron only (N=12); (D) Ondansetron with dexamethasone (N=11). Patients received dexamethasone 0.2 mg/kg (max 10mg) or normal saline placebo after inhalation induction and maintenance using N<sub>2</sub>O, O<sub>2</sub>, Sevoflurane and standard fluid management. Twenty minutes prior to scalp closure, patients received ondansetron 0.15 mg/kg iv (max 4 mg) or promethazine 0.2 mg/kg iv (max 20 mg) followed by morphine 0.05 mg/kg iv (max 2 mg). Ondansetron, then promethazine, were used as needed for PONV in the PACU. Intraoperative time, episodes of PONV, sedation scores, and number of postoperative pain medication and antiemetic doses were measured. Incidence of PONV was compared between groups using exact Chi-Square tests. Continuous variables were compared using the Wilcoxon rank-sum tests.

**RESULTS:** The overall incidence of PONV was lower in patients that received dexamethasone compared to those who did not receive it (0% vs. 23%; p = 0.049). There was no difference in intraoperative time, sedation score, or total doses of pain medicine given in PACU between groups. No adverse reactions were reported.

**CONCLUSION:** There was a significant decrease in incidence of PONV in the patients that received intraoperative iv dexamethasone combined with either ondansetron or promethazine.

**DISCUSSION:** This pilot study is in agreement with findings of Gomber et al.<sup>7</sup> The overall incidence of PONV was lower in patients who received dexamethasone with either ondansetron or promethazine compared to those who did not receive it. Although this study had a small sample size, these findings may give insight for future studies to clarify the mechanism by which steroids are beneficial in the treatment of PONV.

**REFERENCES:**

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