Acupuncture at the pericardium 6 (P6) point reduces postoperative nausea in children after tonsillectomy with and without adenoidectomy

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Background

Tonsillectomy with or without adenoidectomy is one of the most common operations in the pediatric population, with an estimated 200,000 performed each year. Postoperative nausea and vomiting (PONV) is among the most challenging and significant postoperative complications for children undergoing tonsillectomy. There is little information on the efficacy of acupuncture in children (age 3 - 9 years old, ASA 1-3 physical status) that underwent tonsillectomy +/- adenoidectomy. Few recent studies of the use of acupuncture for the prevention of PONV in adults have shown a significant benefit. However, in children there is little information on the efficacy of acupuncture for the prevention of PONV, especially when combined with usual antiemetic therapy (ondansetron and dexamethasone). Intraoperative acupuncture at the pericardium 6 (P6) point plus intravenous (IV) antiemetic therapy more effective than IV antiemetics alone in preventing PONV in pediatric patients following tonsillectomy with or without adenoidectomy?

Methods

- Study design: Randomized double-blind trial of P6 acupuncture in children (age 3 - 9 years old, ASA 1-3 physical status) that underwent tonsillectomy +/- adenoidectomy.
- Patients were randomized to two study groups
  - Acupuncture immediately after induction plus antiemetic therapy (A + PE)
  - Antiemetic therapy only (AE)
- Anesthesia technique was standardized
- Both groups received ondansetron 0.15mg/kg and dexamethasone 0.25mg/kg (up to 10mg)
- P6 needles were placed after induction and removed prior to arrival in PACU (fig 1).
- Older children were queried about nausea in the PACU during phase 1 and phase II recovery.
- Vomiting was assessed by documenting observed vomiting and retching events.

Results/Discussion

- 161 children satisfied the inclusion criteria
  - Acupuncture + antiemetic therapy (A + AE, N= 86)
  - Antiemetic therapy only (AE, N= 75)
- The two study groups did not differ in age, sex, body weight or BMI. (Table 2).
- Intraoperative characteristics were similar between the two groups.
- Statistically significant difference in PACU (Phase I) length of stay between the two groups, with a mean of 87.9 minutes for the A+AE group compared to 84.3 minutes for the AE group (p=0.03). (Table 3).
- No difference between the two groups in the time spent in the Day Stay (Phase II) recovery period (Table 3).

In Phase I recovery, there was a significant reduction in the incidence of nausea, with only 2% of the acupuncture plus antiemetic therapy (A + AE) group having nausea compared with 26.7% in the antiemetic therapy only group (AE) (P<0.001, relative risk = 11.5, 95% CI: 2.8 – 47.4). (Table 1).

This reduction in nausea persisted into Phase II recovery, with nausea occurring 5.8% in the acupuncture plus antiemetic therapy (A + AE) group compared to 30.7% in the antiemetic therapy only (AE) group (P<0.001, relative risk = 5.3, 95%CI: 2.1 – 13.2). (Table 1).

No statistically significant difference in nausea between the two groups in the 24-hour period after surgery (Table 1).

Conclusion

Children who received acupuncture plus antiemetic therapy were at significantly lower risk of developing nausea after tonsillectomy with or without adenoidectomy during phase I and II recovery. With respect to retching and vomiting, there was not a statistically significant difference between the groups. Acupuncture may provide a feasible way to reduce the incidence of nausea in this population when combined with usual antiemetic therapy.

References