A retrospective audit comparing peripheral nerve catheters to lidocaine patches for post-operative analgesia following ear reconstruction surgery

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Introduction

Ear reconstruction surgery in children involves harvesting four rib cartilage to produce an ear-shaped structure. In our centre, post-operative pain had traditionally been managed with the use of peripheral nerve catheters. Due to patient and staff dissatisfaction with the analgesic efficacy of nerve catheters, we decided to change practice to paravertebral blocks or lidocaine patches. Following the use of post-operative lidocaine patches, anecdotal evidence showed a reduction in post-operative pain. Our audit aimed to validate the analgesic superiority of lidocaine patches in this cohort of patients.

Methods

A retrospective audit was performed to compare post-operative analgesic requirements for children who underwent ear reconstruction surgery at our centre between November 2015 and November 2017. Comparison was made between those who received peripheral nerve catheters (PNC), paravertebral blocks (PVB) or lidocaine patches for post-operative analgesia. Ethical approval was not deemed necessary.

Results

A total of 13 cases were performed – notes were obtained for 11 cases. The average age of patients undergoing this procedure was 10.2, with an average weight of 34.3kg.

All patients received intercostal nerve blocks by the Surgeon intra-operatively, regardless of post-operative analgesic regimen. Four patients went on to receive peripheral nerve

catheters; two patients received paravertebral block; and five patients received post-operative lidocaine 5% patches.

Oral morphine solution was prescribed for breakthrough analgesia post-operatively for all patients. The average dose of oral morphine solution used in the first 48 hours post-operatively was 40.5mg with peripheral nerve catheters; 34mg following paravertebral block; and 22.8mg with lidocaine patch (see figure 1). When calculated as mg/kg, the average dose was 1.5mg/kg for PNC; 1.05mg/kg for PVB and 0.6mg/kg for lidocaine patch (see figure 2).

Conclusions

Results would suggest that breakthrough analgesic requirements for children undergoing ear reconstruction surgery were reduced by 60% with lidocaine 5% patches compared with peripheral nerve catheters.

Given the small annual number of cases, it has not been possible to perform statistical analysis. It should be noted that concurrent oral analgesia prescribed was variable between cases, although most patients received regular paracetamol, ibuprofen and MST, with oral clonidine as required. We were unable to compare post-operative pain scores as documentation was inconsistent.

The anecdotal evidence that lidocaine patches resulted in reduced post-operative analgesia requirements has been corroborated by the results of this audit. Ongoing data collection will be required to validate these results.

Figure 1 Total dose of oral morphine solution administered in 48 hour post-operative period

Figure 2 Total dose of oral morphine solution administered in 48 hour post-operative period as mg/kg