

EFFECTIVENESS OF GABAPENTIN AS A POSTOPERATIVE ANALGESIC IN CHILDREN UNDERGOING APPENDECTOMY

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Aim of Study: Gabapentin is increasingly used as a perioperative analgesic. There is minimal data available regarding the safety and effectiveness of gabapentin in children. The purpose of this study was to evaluate gabapentin as an analgesic agent in children undergoing appendectomy.

Methods: A 12 month retrospective review of pediatric patients undergoing appendectomy was performed at a two-hospital children's institution. Patients receiving gabapentin were matched (1:2) with patients who did not receive gabapentin based on age, sex and appendicitis severity (simple versus complicated). Outcome measures included postoperative opioid use, pain scores, and revisits/readmissions.

Main Results: The 29 (33.3%) patients identified who received gabapentin were matched to 58 (66.6%) who did not (total n=87). The majority of patients were male (72, 82.8%), the median age was 11 years, and 45 (51.7%) patients had complicated appendicitis. For those receiving gabapentin the median dose was 10.1mg/kg/day (range 4.4-30.4mg/kg/day). The gabapentin group received significantly less postoperative opioids (0.034 mg/kg morphine equivalents (ME) vs. 0.106mg/kg ME, p<0.01). Groups had similar lengths of time from operation to pain scores \leq 3 (12.21 vs. 17.01 hours, p=0.23). Gabapentin receivers and nonreceivers had similar overall rates of revisit to the emergency department (13.8% vs. 10.3%, p=0.73), readmission (6.9% vs. 1.7%, p=0.26), and revisits secondary to surgical pain (3.4% vs. 3.4%, p=1.00). When stratified by appendicitis severity, gabapentin receivers required less postoperative opioids in both simple (0.010 vs. 0.055mg/kg ME, p<0.01) and perforated (0.057 vs. 0.153mg/kg ME, p=0.03) appendicitis groups (Table). There were no documented major adverse events related to gabapentin identified.

Conclusion: In this retrospective cohort study, gabapentin is associated with a reduction in total postoperative opioid use in children with appendicitis. Larger, prospective studies are warranted to further define the role of gabapentin in children's surgery.

Table. Outcomes of gabapentin receivers and nonreceivers in children undergoing appendectomy stratified by appendicitis severity

	Simple appendicitis (n=42)			Complicated appendicitis (n=45)		
	Gabapentin (n=14)	No gabapentin (n=28)	p value	Gabapentin (n=15)	No gabapentin (n=30)	p value
Total postoperative opioids (ME/kg)	0.010	0.055	<0.01*	0.057	0.153	0.03*
Time to pain score \leq 3 (hours)	7.85	9.95	0.25	15.99	22.20	0.36
Revisit to ED	0	3 (10.7)	0.54	4 (26.7)	3 (10.0)	0.20
Readmission	0	0	--	2 (13.3)	1 (3.3)	0.25

Morphine equivalents (ME), * significance level <0.05