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Reconsidering Perioperative Antibiotic Use in Elective Laparoscopic Cholecystectomy

Kayla B. Briggs

Children's Mercy Hospital

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Perioperative Antibiotic Use in Elective Laparoscopic Cholecystectomy

Kayla B. Briggs MD, James A. Fraser MD, Wendy Jo Svetanoff MD MPH, Charles L. Snyder MD, Pablo Aguayo MD, David Juang MD, Rebecca M. Rentea MD MS, Jason D. Fraser MD, Shawn D. St Peter MD, Tolulope A. Oyetunji MD MPH

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Introduction

- Increasing antibiotic resistance has made the routine use of prophylactic perioperative antibiotics (PPA) questionable in cases with a low rate and risk of surgical site infection (SSI)
- Elective laparoscopic cholecystectomy (ELC) is considered a clean-contaminated case (risk of infection of 3-11%)
- We sought to evaluate institutional use of PPA and subsequent SSI rates in ELC

Methods

- Retrospective review
 - Children <18 years old
 - Elective laparoscopic cholecystectomy
 - July 2010 and August 2020
- SSI defined as infection requiring antibiotics within 30 days of surgery
- Demographics, baseline characteristics, operative details, and follow-up data were recorded

Results

502 patients underwent ELC during the study period

- Majority (78%) female and Caucasian (80%)

60% (n=301) received PPA, 40% (n=201) did not

Overall SSI rate: 3%

Children who received PPA were 77% less likely to develop SSI on multivariate analysis

- All superficial SSIs
- Only 1 child readmitted for IV antibiotics

Table 1. Demographics, baseline characteristics, and pre-operative diagnosis of children who underwent ELC.

	Received PPA (n=301)	No PPA (n=201)	p-value
Female (%)	80.0	75.6	0.2
Age, years [IQR]	15.2 [13.4,16.6]	14.9 [13,16.3]	0.1
Caucasian (%)	79.4	80.6	0.3
BMI (kg/m ²)	25 [20.6,32.1]	24.2 [20.3,29.7]	0.2
Pre-operative diagnosis (%)			
Symptomatic cholelithiasis	54.2	43.8	0.06
Biliary dyskinesia	43.5	51.7	
Hyperkinetic gallbladder	1.7	2.0	
Gallbladder polyp(s)	0.7	2.5	

Table 2. SSI rate by diagnosis.

	Received PPA (n=301)	No PPA (n=201)	p-value
Developed surgical site infection (%)	1.3	5.5	0.01
Symptomatic cholelithiasis	0.3	2.0	
Biliary dyskinesia	1.0	3.5	
Hyperkinetic gallbladder	0	0	
Gallbladder polyp(s)	0	0	

Table 3. Results from multivariate analysis.

Outcome: SSI	Odds ratio	CI (95%)	p-value
Perioperative antibiotic administration	0.23	0.73-0.74	0.014

Table 4. Treatment required for SSI

	Children who developed SSI (n=15)
Outpatient antibiotics	93.3%
Hospitalization	6.7%

Conclusion

- Prophylactic perioperative antibiotic use decreases the rate of SSI however, all SSIs were superficial in nature and only one in our cohort required hospitalization for further treatment.
- PPA use should be carefully considered to avoid contributing to antibiotic-related complications.