

Efficacy of Pre-Operative Antibiotic Therapy in Pediatric Supracondylar Fractures Treated with Closed Reduction and Percutaneous K-Wire Fixation

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INTRODUCTION

- Supracondylar humerus fractures comprise 60% of all pediatric elbow fractures and approximately 15% of all pediatric fractures (1)
- Standard treatment of displaced fractures is closed reduction and percutaneous fixation (CRPP) with k-wires
- Surgical site infections are rare, estimated between 0-4% (2)
- Majority of infections are superficial and treated with oral antibiotics and local wound care (3,4)
- Despite low rate of infection, perioperative antibiotics are frequently administered without clear evidence (3,4)

METHODS

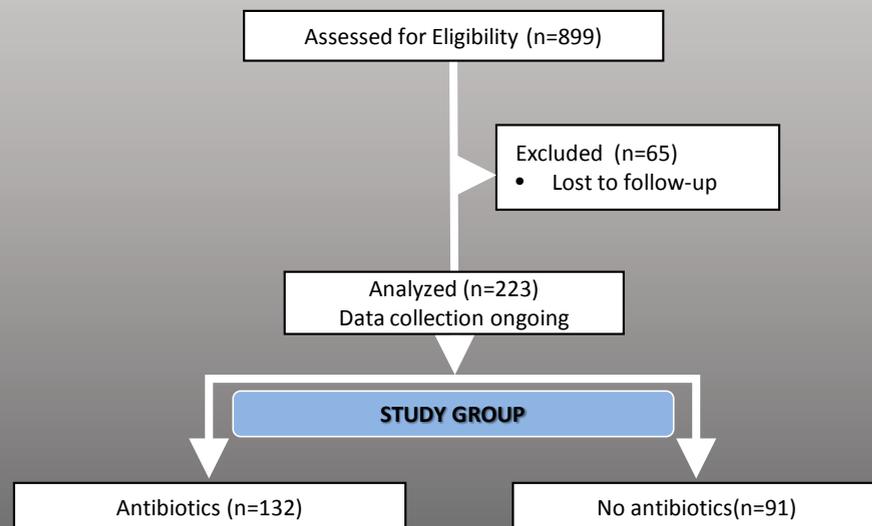
- Retrospective review of 899 patients who underwent CRPP of supracondylar humerus fractures
- Monitored for clinical signs of infection or antibiotic prescription during post-op period, prior to/at pin removal
- 223 reviewed for provisional analysis and reporting
 - Fracture type and fixation
 - Perioperative antibiotic administration
 - Time to pin removal
 - Signs of post-operative infection

	All patients	Antibiotics	No antibiotics	p-value
Total	223	132	91	0.40
Infections	5	2	3	
Infection rate	2.2%	1.5%	3.2%	

CONCLUSION

- Perioperative antibiotic administration had no effect on the rate of infection in this early analysis
- These preliminary data are consistent with the literature (3,4)
- Within institution studied, there is inconsistent administration of perioperative antibiotics among surgeons
- Limitations: currently underpowered, treatment bias
- Power analysis
 - For 80% power to detect significant difference at $p=0.05$ with known infection rate (3.5%) would require 7,732 patients
 - 1240 patients in literature (3,4)
 - 899 patients in current cohort
 - IRB approved to review 226 patients at another institution
- Continued review of remaining patient cohort is needed for improved study power and analysis.

STUDY INCLUSION DIAGRAM



RESULTS

- Of 223 patients, 132 patients received antibiotics preoperatively and 91 patients did not.
- K wires in place average of 23.3 days post operatively
- Infection rate: overall—2.2% (n=5) ; antibiotics—1.5% (n=2); no antibiotics—3.2% (n=3)
- No statistically significant difference between groups ($p = 0.40$)
- 2 of the 5 patients' casts were removed early—by family (n=1) or had water exposure in the cast (n=1)
- Signs of infection for those 5 patients include: fever (n=1), edema (n=2), inflammation at pin site (n=4) and clear drainage (n=1)
- All infections were superficial and successfully treated with oral antibiotics only

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