The Use of the Semi-sterile Technique for Closed Reduction and Percutaneous Pinning (CRPP) of Upper Extremity Fractures in Pediatric Patients

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INTRODUCTION

- The majority of operative upper extremity pediatric fractures can be treated utilizing closed reduction and percutaneous pinning (CRPP).
- CRPP has traditionally been performed using a full surgical prep and drape, which can be wasteful of materials.
- The semi-sterile technique is proven to be safe in treating pediatric supracondylar fractures. [1]
- Semi-sterile technique uses sterile gloves and towels only, followed by prep of the limb with chlorhexidine paint. No scrubbing, drapes or gowns are utilized.
- Hypothesis: The semi-sterile technique can safely be used for CRPP procedures of all upper extremity fractures.


METHODS

- Retrospective review of all pediatric patients who underwent CRPP of an upper extremity fracture over a four-year period.
- Case control series: full prep vs. semi-sterile technique for limb preparation.
- Demographic data, fracture type and location, and length of pin fixation were recorded. Qualities of intraoperative and postoperative care were assessed.
- Simple statistics and unpaired t-tests were performed.

RESULTS

224 patients reviewed:
- Full prep group: 62 patients
- Semi-sterile group: 162 patients

Average length of surgery (p = .007):
- Full prep group: 32 minutes (range 11-110)
- Semi-sterile group: 26 minutes (range 7-69)

Average operating room cleaning time:
- Full prep group: 18.84 minutes
- Semi-sterile group: 16.82 minutes

Average set-up + operating + cleaning time:
- Full prep group: 71.07 minutes
- Semi-sterile group: 61.26 minutes

Complications:
- Full prep group: one pin tract infection and one physeal arrest
- Semi-sterile group: None

CONCLUSIONS

- The semi-sterile technique is a safe and cost effective alternative that should be used when performing CRPP of all pediatric upper extremity fractures.
- The full-prep technique increases medical waste while increasing costs and should be abandoned for CRPP procedures of pediatric upper extremity fractures.