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

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Introduction:

- The vast majority of operative upper extremity pediatric fractures can be treated utilizing closed reduction and percutaneous pinning (CRPP).
- The norm is to perform a full surgical prep and drape during these procedures, which can be wasteful of materials.
- The semi-sterile technique is proven to be safe in treating pediatric supracondylar fractures.
- Semi-sterile technique → Sterile towels and sterile gloves only. Prep of the limb with chlorhexidine paint. No scrubbing, drapes or gowns.

Objectives:

- Determine the safety and efficacy of the semi-sterile technique for treatment of all pediatric 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:
  - One pin tract infection & one physeal arrest in full prep group
  - Three patients had a nerve palsy following supracondylar fracture.

Conclusion:

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