

ORTHOPEDIC PROPHYLACTIC ANTIBIOTIC PROTOCOLS

Rationale:

The rate of infections in open fractures is significantly related with the degree of soft tissue injury, contamination, blood supply to the area, and to the management of the wound¹⁻³. Open fractures are classified by the Gustilo classification system:

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| Type I | wound < 1 cm in length, clean with minimal soft tissue loss or injury |
| Type II | wound > 1 cm but <10 cm without extensive soft tissue injury, tissue loss |
| Type III | wound >10 cm with extensive soft tissue injury |
| | A: Adequate soft tissue coverage, heavy contamination |
| | B: Inadequate soft tissue wound and/or periosteal stripping |
| | C: Concomitant arterial injury and ischemia |

Infection rate increases significantly as the grade of the injury increases (0-2% for type I, to 25-50% for type IIIC). As the grade increases, the pathogens shift towards nosocomial pathogens related to wound handling and colonization of open wounds by hospital bacterial flora. Thus, meticulous wound management greatly reduces infectious complications and has a greater impact than antibiotics delivered after the injury has occurred.

Protocol and Order Set:

Blunt Open Fractures:

1. Antibiotics:

- Types I and II:
 - a. Cefazolin 2 grams IV now and q8h x 3 doses
 - b. Alternative: Levofloxacin 750 mg IV X 1
- Type III (A, B or C):
 - a. Vancomycin per EPIC dosing advisor x 24h
 - b. Ceftriaxone 2 grams IV now q24h x1
 - c. Alternative:
 - a. Levofloxacin 750mg IV X1
 - b. Vancomycin per EPIC dosing advisor x 24h

* Soil or Freshwater contamination (visible soil in wound or known submersion in freshwater):

- a. Zosyn 4.5gm IV x1 load, then 4.5gm IV q8h x 3 doses
- b. Vancomycin per EPIC dosing advisor x 24h
- c. Alternative:
 - a. Levofloxacin 750mg IV x1
 - b. Metronidazole 500mg IV q12h x2 doses
 - c. Vancomycin per EPIC dosing advisor x 24 h

***If multiple debridements are required, redose perioperatively with antibiotics utilized for initial Gustilo classification for each OR debridement**

****If open facial fracture, please refer to the Craniofacial PMG**

Penetrating Ballistic Fractures:

1. Antibiotics:

- High Velocity Penetrating(rifle or shotgun): Treat as Grade III Gustilo (see regimens above)
- Low Velocity Penetrating (handgun/pistol)
 - a. Extremity (operative): Cefazolin 2 grams IV now and q8h x 3 doses perioperatively
 - If operative and penicillin allergic: Levofloxacin 750mg IV X1
 - b. Extremity (Non-operative): no prophylaxis required
 - c. Hip and pelvic fractures with concomitant bowel injury: Ceftriaxone 2 grams IV x1 dose + Metronidazole 500 mg q12h x 2 doses
 - d. Hip and pelvic fractures with no bowel contamination:
 - Non-operative: no prophylaxis required
 - Operative: Cefazolin 2 grams IV now and q8h x 3 doses
 - If operative and penicillin allergic: Levofloxacin 750mg IV X1

References

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