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 wound[1-3]. Most commonly open fractures are classified by the Gustilo classification system:

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: open fracture with 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:

Open Fractures:

1. Antibiotics:
   - Types I and II:
     a. Cefazolin 2 grams IV now and q8h x 3 doses
     b. Penicillin allergic: Levofloxacin 750 mg IV X 1
   - Type III (>10cm and/or severe contamination):
     a. Vancomycin per EPIC dosing advisor x 24h
     b. Ceftriaxone 2 grams IV now q24h x1
     c. Penicillin allergic: Levofloxacin 750mg IV X1
        - If multiple debridements are required, redose perioperatively with antibiotics utilized for initial Gustilo classification

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

Ballistic Fractures:

1. Antibiotics:
   - High Velocity: Treat as Grade III Gustilo (see regimens above)
   - Low Velocity
     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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