UAMS MEDICAL CENTER
TRAUMA SERVICES MANUAL

SUBJECT: Trauma Open Fracture ABX Clinical Practice Management Guidelines

REVIEWED: Revised 2/25/2020

RECOMMENDATION(S): Dr. Kyle Kalkwarf **APPROVAL: 2/11/2020**
EFFECTIVE: 3/1/2020

CONCURRENCE(S): Drs. Steven Cherney, Ryan Dare, Gavin Jones, Simon Mears, Allie Oswalt, Rebecca Smith

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PURPOSE: To facilitate appropriate and timely management of patients with musculoskeletal injury

MANAGEMENT OF OPEN FRACTURES:

1. Sterile dressing with normal saline-soaked gauze
2. Irrigation of gross contamination at discretion of the ORTHO attending
3. IV ABX should be given within 1 hour of ED arrival. ABX selection is outlined in Table 1

<table>
<tr><th colspan="4">Table 1. Antibiotic Selection by Fracture Type</th></tr>
<tr><th>Fracture/Wound Type (including GSW)</th><th>First-line Agent(s)</th><th>Alternative Agent(s) for known anaphylaxis to PCN or cephalosporins</th><th>Duration</th></tr>
<tr><td>Type I: Blunt or Penetrating
<1 cm and clean</td><td rowspan="2">Cefazolin 2 g IV q8h</td><td rowspan="2">Clindamycin 900 mg IV q8h</td><td rowspan="6">ABX should be initiated within 1 hour of arrival

ABX should be DC'ed within 24 hours after initial debridement and closure, either via primary repair or negative pressure dressing OR no more than 72 hours total from time of injury

ABX should NOT be given solely for presence of a drain</td></tr>
<tr><td>Type II: Blunt or Penetrating
1-10 cm without significant soft tissue damage/involvement</td></tr>
<tr><td>Type III: Blunt or Penetrating
>10 cm, segmental fx (e.g., multiple fx to same bone), extensive soft tissue damage, traumatic amputation, femur fx</td><td>Ceftriaxone 2 g IV q24h</td><td rowspan="2">Clindamycin 900 mg IV q8h PLUS Gentamicin 5 mg/kg x 1 dose</td></tr>
<tr><td>Contamination
Farm-related, Crush or Vascular Injury, Fecal contamination, Standing Water, Soil</td><td>Above ABX PLUS Metronidazole 500 mg IV q8h x 24h</td></tr>
<tr><td>Open Mandible Fx</td><td>Cefazolin 2 g IV q8h PLUS Metronidazole 500 mg IV q8h BOTH x 24h</td><td>Clindamycin 900 mg IV q8h x 24h</td></tr>
<tr><td>Facial fx (closed or open), Open Skull fx (without CSF leak)*, Sinus, Anterior/Posterior Table</td><td>None</td><td>None</td></tr>
<tr><td colspan="4">*For Open Skull fx with CSF leak, please see Traumatic Pneumocephalus Guidelines for appropriate management
-ABX with similar spectrums used for other injuries may suffice, but must be discussed with trauma attending or pharmacist</td></tr>
</table>

4. Open fractures should be transferred to the OR on an urgent basis (within 24 hours)
5. For all fracture types, patients must receive cefazolin (or clindamycin if allergy) within 1 hour of start of surgery. In cases where it has been >1 hour since last ABX dose, additional pre-op dose must be given

These guidelines were prepared by the UAMS Trauma Service. They are intended to serve only as a guideline based on current review of the medical literature and practice. They are neither policies nor protocols. Their use is at the discretion of the managing physician

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PERFORMANCE IMPROVEMENT MONITORING: (Expected Outcomes)

1. Time of Injury to initial washout of open fracture: within 24 hours. Patients with gross wound contamination require washout as soon as clinically feasible
2. Timing of antibiotics: within 1 hour of Emergency Department arrival

References:

1. ACS TQIP Best Practices in the Management of Orthopedic Trauma
2. Hoff WS, Bonadies JA, Cachecho R, et al. East Practice Management Guidelines Work Group: update to practice management guidelines for prophylactic antibiotic use in open fractures. J Trauma. 2011 Mar;70(3):751-4.
3. DePestel DD, Benninger MS, Danziger L, et al. Cephalosporin use in treatment of patients with penicillin allergies. J Am Pharm Assoc (2003). 2008 Jul-Aug;48(4):530-40.
4. Dunkel N, Pittet D, Tovmirzaeva L, et al. Short duration of antibiotic prophylaxis in open fractures does not enhance risk of subsequent infection. Bone Joint J. 2013 Jun;95-B(6):831-7.
5. Rodriguez L, Jung HS, Goulet JA, Cicalo A, Machado-Aranda DA, Napolitano LM. Evidence-based protocol for prophylactic antibiotics in open fractures: improved antibiotic stewardship with no increase in infection rates. J Trauma Acute Care Surg. 2014 Sep;77(3):400-7.
6. Zalavras CG. Prevention of infection in open fractures. Infectious Disease Clinics. 2017 Jun 1;31(2):339-52.
7. Zosa BM, Elliott CW, Kurlander DE, Johnson F, Ho VP, Claridge JA. Facing the facts on prophylactic antibiotics for facial fractures: 1 day or less. Journal of Trauma and Acute Care Surgery. 2018 Sep 1;85(3):444-50.
8. Ratilal BO, Costa J, Pappamikail L, Sampaio C. Antibiotic prophylaxis for preventing meningitis in patients with basilar skull fractures. Cochrane Database of Systematic Reviews. 2015(4).

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