UPDATE ON COMMUNITY TRAUMA

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OBJECTIVES

• Understand common fractures that present to community trauma centers
• Outline basic treatment principles for common fractures
• Define what systemic/metabolic conditions contribute to fracture management outcomes
• Understand the treatment rational for patients with fractures and comorbidites
# 10 Leading Causes of Death by Age Group, United States – 2016

<table>
<thead>
<tr>
<th>Rank</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
<th>25-34</th>
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<th>45-54</th>
<th>55-64</th>
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<tbody>
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<td>Septicemia 38,445</td>
<td>Suicide 44,965</td>
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GERIATRIC TRAUMA

• 25-30% of trauma admissions
• Will increase to 40% by 2050
• Higher mortality, longer lengths of stay, increased rates of morbidity
• *Mortality rate increases 7% for each 1-year increase over age 65
COMMON FRACTURE PATTERNS

- Hip
- Forearm/Wrist
- Clavicle
- Ankle/Lower leg
- Spine
HIP FRACTURES

• *Mechanism – same level fall
  • Poor bone quality

• Approx 340,000 hip fractures in the US each year (1.5M worldwide)
  • By 2050 estimated 700,000 in US, 3.9M worldwide
HIP FRACTURES

- 65-70% of hip fractures occur in females
  - Men who suffered fractures were 4 years younger than females
    - Higher ASA scores, comorbidities
      - Cirrhosis/Alcoholism, COPD, emphysema, balance issues, stroke
  - Mortality at 2 years
    - Men 42%
    - Women 23%
ECONIMICS OF HIP FRACTURES

• Integrated hip fracture protocol
  • Earlier clearance to get surgery done within 24 hours when possible
    • Anesthesia does regional blocks before admission to floor for pain control
    • Medical clearance in timely fashion – hospitalist
    • Decrease the amount of cardiology consults
    • OR available the next day at noon for surgery
    • PT protocols for POD#1-3
    • Social services for placement
FOREARM AND WRIST FRACTURES

- *Fall on outstretched hand*
- Radius/ulna shaft fractures
- Distal radius fractures – 25% of all pediatric fractures

- Distal radius fractures common in elderly – 18%
  - Low energy falls
  - Poor bone quality
  - “Colles fracture”
8yo male s/p fall off monkey bars
DISTAL RADIUS FRACTURES

58yo male s/p 12 foot fall off ladder
DISTAL RADIUS FRACTURES

- Elderly patients can tolerate non-operative treatment
  - Studies show near equal ROM, pain scores, and function
  - Decreased grip strength, radiographic outcome
  - Patients tolerate deformity well without undergoing the risks of surgery
CLAVICLE FRACTURES

• *Direct blow/Fall onto shoulder/hand
• 5% of all adult fractures
• Most common are middle 1/3 fractures
• Historically treated non-operative
  • Treated in sling, ROM elbow, wrist
• Risk of nonunion if > 2cm shortening
  • Pain
  • Permanent shoulder dysfunction
CLAVICLE FRACTURES

16yo QB s/p hit to shoulder during preseason scrimmage

4.5 months later
CLAVICLE FRACTURES

19yo Walsh freshman DB s/p fall onto shoulder

• Surgical intervention - cons
  • Hardware prominence prompting removal
  • Permanent numbness over incision
  • Nonunion requiring bone grafting
    • Iliac crest
      • Pain
ANKLE

• VERY COMMON injuries
• *Usually due to a “twisting” mechanism (low-energy)
• Falls on ice
• Sports
• Average age 41
  • Adolescents
    • Male>female
  • Older adults
    • Female>male
ANKLE VS. PILON FRACTURES

• Pilon fractures are also fractures of the distal tibia and fibula
• *higher energy mechanism of injury
  • MVA, MCA, fall from height

• Higher incidence of being open, having skin problems, blistering
PILON FRACTURE
ANKLE FRACTURES

• Diabetic ankle fractures
  • Can double time to weight bearing (9-12 vs 6 weeks)
  • Higher incidence of infections/wound healing problems/delayed healing
  • Charcot arthropathy – non op
  • ORIF vs fusion
49 YO FEMALE, S/P FALL

- PMH:
  - IDDM
  - Diabetic retinopathy/vitreous hemorrhage
  - Dense neuropathy BLE from mid shin distal
• Uneventful 6 weeks NWB
• Begins physical therapy
• Therapist notices significant swelling/redness
• Patient denies pain
• Sent to ER, dvt study negative
• Sent for Xray in ER
• Taken to OR for hardware removal and fusion with tibiocalcaneal nail
• NWB 3 months
71YO MALE S/P FALL DOWN STEPS
• PMH:
  • HTN
  • Hypercholesterolemia
  • IDDM
  • Diabetic neuropathy – dorsal/plantar feet
10 DAYS LATER, NOTICES “DEFORMITY”
• Admitted, placed on IV atbx, underwent removal of external fixator
• Sent home with Keflex
• Seen in office in 5 days for wound check, skin looked good
• Set up for IM nail the next week
  • Plate vs rod
2 WEEKS POST OP
QUESTIONS?