Abdominal trauma, puncture wounds, and tetanus

Abdominal trauma

- Blunt force trauma is a non-penetrating injury from an impactful force to a part of the body. EX: MVA, falls.
  - S/S: guarding + splinting, hard + distended abdomen, bruising over abdomen, abdominal pain, rebound tenderness.
    Cullen's Sign: periumbilical ecchymosis, indicates intraperitoneal hemorrhage.
    Kehr's sign: referred pain in the left shoulder due to presence of blood in the peritoneal cavity.
    Seat belt syndrome: Can cause contusions, rib fractures, or damage to internal organs such as bowel perforation and diaphragm rupture. Produces a blunt trauma to abdominal organs by pressing them into the spinal column.

Puncture wounds: Break through the skin and into the tissue. From a sharp object or animal bite. Risk for infection and tetanus.

- Tetanus: infection of the nervous system and affects spinal and cranial nerves. Caused by a neurotoxin (tetanospasmin). Stops the release of inhibitory neurotransmitters -> sustained muscle contractions. Risk factors: IV drug use, animal bite, stepping on a nail, burns, and open fractures/wounds. S/S: muscle rigidity and spasms, difficulty swallowing, tachycardia. Facial muscles affected 1st – stiffness of the jaw and a sardonic smile. R/F respiratory failure due to respiratory muscle spasms. At r/f fractures and dislocations.

On-scene treatment:

- Abdominal trauma/puncture wound: ABCs, control external bleeding with direct pressure from a sterile pressure dressing. Stabilize the impaled object and don't remove it. IV access with NS or LR infusing. If abdominal contents are protruding from the wound -> cover with a sterile dressing moistened with NS and cover with plastic wrap.
- Tetanus: anticipate the need for mechanical ventilation + intubation depending on severity.

ED treatment:

- Abdominal trauma: CT scan, diagnostic peritoneal lavage, FAST US, NG/OG tube, prophylactic abx, emergent laparotomy

  Diagnostic peritoneal lavage detects hemoperitoneum. Catheter insertion into peritoneal cavity, lavage of fluid, and evaluation of fluid to determine if RBC or WBC are present. Negative – no bleeding. Positive – bleeding/fluid present.

  FAST US: bedside US to rapidly identify free fluid in the abdomen. Done in all patients suspected of an abdominal injury.

  Wound care: wash with soap + water for 10 minutes -> irrigate with NSS (use 18g needle + 30-60ml syringe) -> debride -> pack with DSD.

- Puncture wound: CT or XR, wound care, and tetanus prophylaxis. Tetanus has no specific diagnostic –> use S/S and H+P.

Role of the ED nurse:

- Abdominal trauma: Monitor VS, LOC, O2, UO. Labs (ex: H+H & type and crossmatch). Administer blood products, vasopressors, and pain meds PRN.
- Puncture wounds: wound care, administer abx as ordered, and Tdap vaccination status.
- Tetanus: administer benzodiazepines, dantrolene, or magnesium sulfate PRN for muscle contractions. Administer HTIG, abx, and Tdap for infection control. Perform wound debridement. If severe/requiring intubation, transfer to ICU.
  Tdap: increased r/f tetanus + should be considered for a booster if wound is dirty (contaminated with dirt, soil, or saliva), penetrating wound or puncture wound. If unvaccinated, should receive the 3-dose primary series of Tdap. If their last dose is within 5 years, they're protected. If it's been more than 5 years, they should receive a booster.

Discharge/prevention instructions:

- Abdominal trauma: post-op limitations, pain management, deep breathing + coughing, wound care instructions, s/s of infection.
- Puncture wounds/tetanus: wound care instructions, ways to prevent this type of injury in the future, s/s of infection, immediate thorough cleaning of the wound for prevention, receive Tdap booster q10years