Retirement is Dangerous

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Geriatric Trauma

Growing national concern
- Defined as pts. 65 years of age and older
  - 12% of US population and rising
  - Disproportionately high, 28% of injury fatalities
  - Use over 30% of all healthcare cost expended on injury
- Study on benefits of aggressive management of the geriatric patient
  - Investigated 100 consecutive patients
    - 96% of patients were independent before injury
    - 88% did NOT return to the previous quality of life
    - 72% required full nursing care
Risk Factors

- By the time pt’s reach age 65:
  - 13.7% will have HTN
  - 9.2% will have COPD
  - 6.3% will have IDDM
  - 5.6% will have CAD

- To obtain best results, one must have a high suspicion of it’s presence and aggressively treat to prevent hypotension and hypoxemia.
Some live longer than others...
Epidemiology

- Trauma is the 7th leading cause of death in the elderly
  - In order of most to least common:
    - Falls
    - MVC
    - Pedestrian struck
    - Stab wounds
    - Gunshot wounds
    - others
Epidemiology

- Mortality rate and length of stay nearly double that of younger patients
- Financial cost on yearly basis is about $20 billion
Mechanism of Injury

- EMS Providers as well as E.D. staff must incorporate the possible inciting event leading to the trauma in the elderly.

- More often the inciting event can be more significant to the patient’s course:
  - Ex. Syncope, hypoglycemia, or cardiac dysrhythmia, etc.
Mechanism of Injury

- Falls
  - Most common method of injury in the elderly
  - 50% of admitted eventually d/c ED to Nursing home
  - Cost from fall injuries are estimated at 53 million
Mechanism of Injury

- MVC
  - Falls are the #1 overall cause of trauma related injuries
  - MVC are #1 cause of trauma related deaths ages 65-74
  - In accidents involving elderly patients
    - 80% were found to be at fault
      - 18% - syncopal episode was the inciting agent
Mechanism of Injury

- Pedestrian struck by Motor Vehicle
  - Involves the elderly more than any other age group.
  - Cause
    - Confusion
    - Vision or hearing deficiency
    - Poor gait
Mechanism of Injury

- Elder Abuse
  - Less recognized than child or spousal abuse
  - Approximately 5,000 cases each year in US
    - 32 per 1000 adults over 65 years old are abused
  - Abuser is most commonly spouse of children of the abused
  - No definite sex predomination
  - Similar to child abuse, if EMS or E.D. staff deems it not safe for patient to return home, social services must be notified.
This is one special relationship.
Physiology of Injury

- Cardiovascular
  - Cardiac Output (CO) declines 1% per yr after age 30
  - By age 80 the CO is half of that of a 20 year old
  - Changes in CO are directly related to:
    - Decreased cardiac filling
    - Diminished cardiac response to endogenous or exogenous catecholamines
    - Decreased compliance of arteries
Physiology of Injury

- Pulmonary
  - Geriatric chest trauma can likely lead to ARDS due to decreased chest wall compliance
  - COPD is common ailment in the elderly
    - High flow O2 may suppress the hypoxic ventilatory drive in patients with COPD
    - Pulmonary contusions usually leads to pneumonia, which can ultimately lead to death.
Physiology of Injury

- Renal
  - With age, there is a decrease in renal mass and the number of functional glomeruli
    - Results in declining creatinine clearance
    - Must be weary of drugs that are cleared by the renal system when administering therapy
      - Aminoglycosides, pcn and digoxin
    - Assessment of urine output as means of resuscitation less applicable
      - Many elderly use diuretics
      - Geriatric patients have difficulty concentrating urine
Physiology of Injury

- Other changes
  - Immune system
    - Increased risk for infection
    - Decreased ability to fight off infection
  - Endocrine/ Metabolic
    - Osteoporosis
      - Orthopedic injuries
Approach to the Geriatric Trauma

- **Pre-hospital**
  - Imperative to understand past medical history and events leading to injury
    - Elderly have shown to be under-triaged
    - Co-morbidities often are the inciting cause of injury
  - Early intubation
    - Lower threshold to intubate (Be careful with RSI meds)
  - Resuscitation with restraint
    - Less cardiac reserve
    * Be careful not to fluid overload Pt.
Approach to the Geriatric Trauma

- Head and Cervical Spine
  - Drastically less force needed to fracture skull or C-spine
    - compared to younger patients who undergo similar trauma
    - Little or no apparent trauma can cause subdural bleeding
  - Recommended to have liberal use of Head CTs to rule out injuries
    - Indications- multisystem injuries, +LOC, Neuro deficit, dementia, any head trauma and or face.
Being stubborn can be a virtue.

They must know that you care about them
Approach to the Geriatric Trauma

- Cervical Spine Injuries
  - Just as in young trauma
    - Need rigid collar, padding the voids.
  - Higher instance for Central Cord syndrome
    - Due to age related narrowing of cervical canal and vascular disease of spinal arteries
      - Causes deficit of upper extremity strength and sensation
Approach to the Geriatric Trauma

- **Chest**
  - Rib fractures are the most common injury
  - EKG remains the most sensitive method to predict short-term cardiac complications
  - Chest wall is not as pliable as the younger pt.’s.
Important Medication List

- Beta-Blockers will mask shock, the elderly population can have shock that cannot be compensated for when on Beta-Blockers.

- Coumadin will increase bleeding risk, lab values are important. i.e. PT/PTT, Hematocrit.

- Very important to obtain medication list on all patients!
Elderly Patients are Important

- The way we treat the elderly pt. proves what type of caregiver we truly are.
- Treating the elderly with respect and compassion sets the right example for the next generation of EMS providers and E.D. Staff.
- How we treat elderly pt.’s in the field will set the course of ongoing treatment by E.D. staff.
Approach to the Geriatric Trauma

- **Abdomen/Pelvis**
  - In face of multi-system injuries, abdominal exam is limited.
    - Recommend liberal use of diagnostics
      - DPL, US, CT

- **Pelvis**
  - Fractures are significant for high mortality.
  - Palpate gently not to cause further injury/damage.
Approach to Geriatric Trauma

- Extremity Trauma
  - Like all other fractures in elderly
    - Little impact necessary for fracture
    - Overall isolated extremity injuries are tolerated well by the elderly, but can be serious.
    - Liberal radiological diagnostics are recommended.
    - Aggressively treat pain with Morphine and Fentanyl
    - Be cautious with Fentanyl (Watch for stiff chest syndrome.)
Conclusion

Higher complication rates, higher mortality, longer length of hospital stay for any injury compared to younger patients

Pearls and Pitfalls
- Co-morbid status is more important than chronological age
- Consider early transfer to a trauma center
- Consider why the accident occurred. Syncope may be responsible in almost 20% of MVC of elderly
Conclusion

Early recognition of severity of trauma, and early activation of Air Medical transport is critical to ensure a positive outcome.

Physical examination with a high suspicion of underlying injury helps EMS providers and E.D. staff make sound judgment of treatment regimen.

Geriatric pt.’s are a special group of people and should be treated aggressively.
What Does LIFE FORCE Offer?

- Critical Care for the Geriatric Pt. In flight.
- Invasive monitoring when needed.
- 4 Units of PRBC’s for the elderly trauma pt. that is needed to replace oxygen carrying capacity.
- Lab Values to assess the severity of pt.
- Femoral line access for poor vascular access in the elderly pt.’s.
Thank You for allowing LIFE FORCE to assist you with caring for your community.