VANDERBILT UNIVERSITY MEDICAL CENTER

DIVISION OF TRAUMA AND SURGICAL CRITICAL CARE

Geriatric Trauma Patient Management Guidelines

Rationale: To assure older adults (>65 years of age) receive age appropriate care following trauma

I. Admission Orders:

- Past medical history/Past surgical history within 24h
- Medication reconciliation by trauma team within 24h
- Admission nurse to obtain FRAILTY Score in Epic
- Reversal plan for anticoagulation

Drug Class	Anticoagulant	Reversal Plan
Vitamin K antagonist	Warfarin (Coumadin)	• Vitamin K 10mg IV x 1 (use caution in patients with active VTEs and/or prosthetic heart valves) • FFP – Do not use if evidence of heart failure, pulmonary edema, or Jehovah's Witness • PCC (K-centra) – If not a candidate for FFP or rapid reversal indicated – repeat INR 6 hours post-administration
Factor Xa Inhibitor	Apixaban (Eliquis) Rivaroxaban (Xarelto) Edoxaban (Savaysa) Betrixaban (Bevyxxa)	• PCC (K-centra) – repeat INR 6 hours post-administration • **Mandatory Hematology consult for PCC when reversing Xa inhibitors**
Direct Thrombin Inhibitor	Dabigatran (Pradaxa)	• Praxbind – dosing per eStar advisor

- Additional Labs
  - B12/Vit D/TSH/FT4
  - Hgb A1C
  - Consider venous lactate (if polytrauma) – if elevated obtain arterial lactate
- EKG

II. Admission: ICU vs. Step-down:

- Decision for TICU vs step-down is based on clinical judgment. However, if patient has any of the following, they should be considered for admission to the Trauma ICU:
  - Rib fractures (4 or greater)
  - Multiple long bone fractures
  - Severe pelvic fractures
  - Hypotension: SBP < 110

III. Geriatric vs. Medicine Consultation – when step-down status:

- FRAILTY score of 4 or 5
- Polypharmacy – greater than 5 home medications
- Recurrent falls and/or persistent delirium
- Ongoing care of complex medical diagnoses

IV. Specific Interventions for Geriatric Trauma Patient

- Formal swallow evaluation by Speech therapy
- Delirium minimization:
    - Avoid benzodiazepines
    - Reduce antipsychotic dosing by 50%
    - Avoid Haldol >5mg or quetiapine >100mg
    - Priority for transfer out of receiving and ICU
    - Avoid anticholinergics
    - Consider non-narcotic pain management (please see Appendix A)

V. Goals of Care – discussion and documentation in medical record within 24hrs of admission

- Code Status – mandatory
- Identify if patient has Advance Directives
- Consider Palliative care consult for surrogacy, advanced directive, and/or family conflict concerns
- Consider Hospice Scatter Bed Admission if appropriate

Appendix A

Prescribing Guidelines for Geriatric Polypharmacy

Medication	Prescribing Guidelines
Quetiapine	* Do not use for RASS < +1; consider melatonin or trazadone first line for sleep
Olanzapine	* Do not use for RASS < +1
Haloperidol	* Avoid use in TBIs for greater than 3 days
Gabapentin	* Avoid use unless patient specifically has neuropathic pain (Pain, Agitation, and Delirium guidelines only recommend it for this indication). * May continue if home medication (consider reduced dose if frequent falls).
Famotidine	* Discontinue when appropriate (tolerating enteral diet, outside of ICU).
Diazepam	* Most appropriate for patients < 65 years of age and without significant liver disease.
Lorazepam	* Preferred benzodiazepine (may use for benzodiazepine maintenance if home agent is inappropriate or ETOH withdrawal if patient is excluded from receiving phenobarbital per protocol)
Alprazolam	* Should be restarted if a home medication due to short half-life and risk of withdrawal. * Do not use more than 1 benzodiazepine in a single patient (i.e. continuing home alprazolam dose but also using phenobarbital or lorazepam for ETOH withdrawal)
Diphenhydramine	* Use for true allergic reaction only. * Do not use as a sleeping aide.
Ziprasidone	* Oral formulation is available. May use as secondary option for quetiapine or olanzapine failure in frontal lobe TBI patients.
Sleep medications	* Pick ONE only: melatonin, quetiapine, trazadone are preferred agents. * Avoid zolpidem or benzodiazepines
Odansetron	* Preferred agent for nausea, but monitor for QTc prolongation if requiring frequent or prolonged dosing or if receiving concomitant QTc prolonging agents

Muscle Relaxers	* Poorly tolerated in elderly due to anticholinergic effects. Do not use more than 1 muscle relaxer at a time. Do not restart home muscle relaxers unless patient has a documental musculoskeletal disorder or has new onset of specific muscle- spasmodic pain. *EXCEPTION: Baclofen- must be restarted due to risk of baclofen withdrawal (may use reduced dose if PO). *Consult CPS if the patient has baclofen pump. *Tizanidine: may decrease blood pressure (alpha-2 agonist); must be up-titrated from 2mg dosage, do not start at 4mg
NSAIDs	*Do not use more than 1 type of NSAID. NSAIDs are not contraindicated in TBI patients. *Consult neurosurgery notes for specific time frames to avoid aspirin. * Consider acetaminophen 1 gram TID as first line. If NSAIDs necessary, limit use to 1-2 weeks.
Home Antihypertensive Medications	*Antihypertensives: use caution with restarting multiple home antihypertensives *Restart home antihypertensive medications at a level appropriate for current vital sign trends. Consider starting at 50% of home dose and uptitrating dose/adding additional home antihypertensives in a stepwise manner. *If acutely elevated potassium and/or SCr, hold ACE-I's, thiazide, and potassium- sparing diuretics (triamterene, spironolactone).

Appendix B

Geriatric Polypharmacy: Medications to Avoid

1. Tricyclic antidepressants (examples: amitriptyline, imipramine)

2. Promethazine

3. Hydroxyzine

4. Benztropine

5. Scopolamine

6. Nitrofurantoin (do not use if CrCl <30 ml/min)

7. Alpha-1 blockers: terazosin, doxazosin (Tamsulosin is preferred if able to take PO)

8. Central alpha-agonists: clonidine, guanfacine, methyldopa (clonidine should not be used as first line antihypertensive).

    a. If clonidine is a home med, we should restart at appropriate dose for current vitals and wean as tolerated. Do not abruptly stop if long term use.

10. First generation antihistamines (examples: chlorpheniramine, diphenhydramine)

11. Megestrol: poorly tolerated and increased risk of thrombosis

12. Anti-spasmodics (bladder): tolterodine, oxybutynin, dicyclomine

13. Opiates: Do not use morphine/MS Contin in > 65 yo patients.

14. Second generation antipsychotics (e.g. quetiapine, olanzapine): Carry Black Box warning of increasing mortality in elderly with dementia. Avoid long-term use if possible.

    a. If absolutely needed, dose within recommended ranges and for no longer than necessary: olanzapine 2.5-5mg, quetiapine 12.5-100mg, haloperidol 1-5mg.

    b. Please consider discontinuing prior to discharge.

15. Benzodiazepines: Elderly have greater sensitivity to benzodiazepines and slower metabolism. Do not use for treatment of insomnia, agitation, or delirium.

    a. May be appropriate for seizure disorders, ETOH withdrawal, palliative care, benzodiazepine withdrawal, short-term anxiety treatment, and peri-procedural anesthesia.

Developed by:
Leanne Atchison, Pharm D
Caroline Banes RN, MSN, ACNP-BC
Jennifer Beavers, Pharm D
Brad Dennis, MD
Bethany Evans RN, MSN, ACNP-BC
Cathy Maxwell PhD, RN, FAAN
Richard Miller, MD

Last Modified: 2/27/2020

References:

American Geriatrics Society Updated BEERS Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatric Soc*. February 29, 2012.

Geriatric Trauma Management Guidelines. Trauma Quality Improvement Program. American College of Surgeons. 2017.

The American Geriatrics Society 2012 Beers Criteria Updated Expert Panel. American geriatrics society updated beers criteria for potentially inappropriate medication use in older adults. *J Am Geriatrics.* 2012; 12:1.

Abdulraheem IS. Polypharmacy: a risk factor for geriatric syndrome, morbidity, and mortality. *Aging Sci.* 2013; 1(2): e103.

Gallagher P, O'Mahony Denis. STOPP: application to acutely ill elderly patients and comparison with Beers' criteria. *Age and Aging*. 2008; 37:673.

Lai SW, Liao KF, Liao CC, et al. Polypharmacy correlates with increased risk of hip fracture in the elderly: a population-based study. *Medicine*. 2010;89(5): 295.