Case A

82yo female comes to the ED, from home. She called EMS today for general weakness.

PMHx: HTN, dyslipidemia, hypothyroidism, osteoporosis, osteoarthritis, GERD, hearing impairment

Medications :
Ramipril
Rosuvastatin
Synthroid
Vitamin D
Calcium carbonate
Pantoloc

1. **How would you approach this patient concern?**

   Thorough ROS and detailed physical exam. It is a generalized complaint so we need to be thorough to guide our differential diagnosis and workup. Try to get collateral if patient history incomplete.

On further history:
She denies any chest pain, no fevers, no SOB, no abdo pain. Denies any recent infectious symptoms. She endorses nausea, no emesis. No change to BMs. No recent falls. No urinary symptoms.
Her daughter encouraged her to call EMS because she wasn't herself – she is normally active throughout the day, but she states that she just doesn't have the energy to do anything the past few days and has been in bed most of the time.

On exam:
HR 87, BP 124/95, RR 20, O2 97% on RA, T 37.1
Resp : clear AE=AE, no inc WOB
Cardiac : normal heart sounds, no peripheral edema
Abdo: soft, nondistended, tender to epigastrum/RUQ, non-peritonitic
Skin: no rashes
Neuro: no lateralizing deficits, GCS 15

2. **Based on your history and exam, what investigations will you order?**

CBC
Electrolytes, extended lytes
BUN, Cr
CRP
Liver enzymes, lipase, bilirubin, INR

Lactate
Troponin
ECG
CXR/AXR

Based on the above, I may end up doing abdo US or CT abdomen.

3. **Her labs show:**
   CRP 12
   WBC 10
   Cr 100
   normal electrolytes
   Trop 12
   normal ECG
   Bilirubin 18
   AST 45
   ALT 50
   Lipase 20
   INR 1.1

4. **What are your next steps? Any other tests to consider at this time?**

   Repeat abdo exam – if still focal epigastric/RUQ pain then do US. If generalized pain, do CT.

5. **The nurses came over and tell you that the patient just went to the washroom to void and the urine smelled foul. They tell you they sent off a urinalysis.**

   The UA results show leukocytes. What do you do with these results?

   Re-assess the patient. Ask about urinary symptoms. Physically examine for suprapubic tenderness or CVA tenderness.

   Review the definition of UTI:

   Presence of:
   - Bacteriuria (isolation of urinary pathogen at $\geq 10^5$ CFU/mL in mid-stream urine)
     AND
   - Genitourinary signs or symptoms

   REF: Nicolle et al. 2019; Rowe & Juthani-Mehta, 2014

   Review the signs and symptoms of UTI:
   - Urinary frequency

- Urinary urgency
- Dysuria
- New or worsening urinary incontinence
- Gross hematuria
- Suprapubic tenderness
- CVA pain or tenderness

REF: Blondel-Hill et al. 2018; Caterino et al. 2019; Mayne et al. 2019; Nicolle et al 2019

Given that she has no signs or symptoms of a UTI, then this is most likely ASB. Thus, I would not start to treat in this case. Instead, I would continue my workup for alternative causes of her weakness, nausea, and RUQ/epigastric pain.

6. **List 12 items on your DDx for abdominal pain in geriatric patients**

- Appendicitis
- Cholecystitis
- Biliary colic
- PUD
- Mesenteric ischemic
- AAA
- Diverticulitis
- Bowel obstructions
- Pancreatitis
- Renal colic
- MI
- Pyelonephritis
- Resp: PE, pneumonia, pleural effusion, pneumothorax
- DKA

Ref: Spangler, R., Van Pham, T., Khoujah, D., & Martinez, J. P. (2014). Abdominal emergencies in the geriatric patient. *International journal of emergency medicine*, *7*(1), 1-8.

7. **You order an abdo US for ongoing RUQ tenderness on exam. Your US shows signs of cholecystitis. You initiate antibiotics and consult general surgery. Older adults have increased risk of complications from acute cholecystitis. What are a few possible complications?**

Gangrenous cholecystitis, emphysematous cholecystitis, empyema of gallbladder, gallbladder perforation.

They are at increased risk due to age-related changes in vasculature of gallbladder.

Ref:

Spangler, R., Van Pham, T., Khoujah, D., & Martinez, J. P. (2014). Abdominal emergencies in the geriatric patient. *International journal of emergency medicine*, *7*(1), 1-8.

Bedirli, A., Sakrak, O., Sözüer, E. M., Kerek, M., & Güler, I. (2001). Factors effecting the complications in the natural history of acute cholecystitis. *Hepato-gastroenterology*, *48*(41), 1275-1278.

8. **The general surgeon is hesitant to operate on this geriatric patient. He asks about her GOC, and social/functional situation. You decide to assess her frailty so you can provide an educated illustration of her risk for surgery.**

   To use the CFS, what questions do you need to ask the patient?

   2 weeks prior to feeling unwell from this acute illness, please answer the following.

   i) Do you have trouble or need help with daily activities like cooking, cleaning, shopping, washing?
      a. If yes, ask if you are able to wash and dress yourself each morning?
   ii) Do you walk?
      a. If yes, how often in a week? How far? Do you use a walk aid?
   iii) Any chronic pain or mobility issues?
   iv) Any other activities you do?

9. **You get the following information, based on this what is her clinical frailty scale (CFS) score?**

   Lives with her husband in a house (2-storeys). She walks independently without any gait aids. She continues to be independent with house work and shopping, and her ADLs. She walks outside 3-4 times a week unless its too cold.

   CFS: 3 □ “managing well”

Case B

90yo M from LTC, brought in by EMS for 2 falls in the past 24 hours.

PMHx:
Dementia, HTN, CKD, osteoarthritis, T2DM

Meds:
Donepezil
Hydrochlorothiazide
Empagliflozin
Metformin

You go to see the patient to do your history and exam, however, he cannot recount any details of the falls. Denies any symptoms.
Your exam:
HR 74, **BP** 132/94, **RR** 22, **O2** 93% on RA, **T** 36.5
Resp : clear AE=AE, no inc WOB
Cardiac : normal heart sounds, mild bilateral 1+ pitting edema
Abdo: soft, nondistended, non-tender
Skin: no rashes
Neuro: no lateralizing deficits, GCS 14, PERL 3
MSK: full ROM all 4 limbs without pain/deformity

1. **How would you try to get more information on the events that lead the patient to hospital? What specific information would you ask?**
    - EMS report
    - Call the facility
        - Ask about what he is normally like
        - Does he fall often?
        - Gait aids?
        - Mental status normally? Any changes lately?
        - Has he been eating/drinking normally?
        - Any recent infectious symptoms?
        - Any complaints from patient?
        - Were the falls witnessed? If so get details.
    - Call family
        - Ask when they last saw him? Any changes noticed recently?

On further history, you call the care facility and get collateral from the daughter at bedside.

They state that he is normally disoriented to person/place, and is at his cognitive baseline currently.

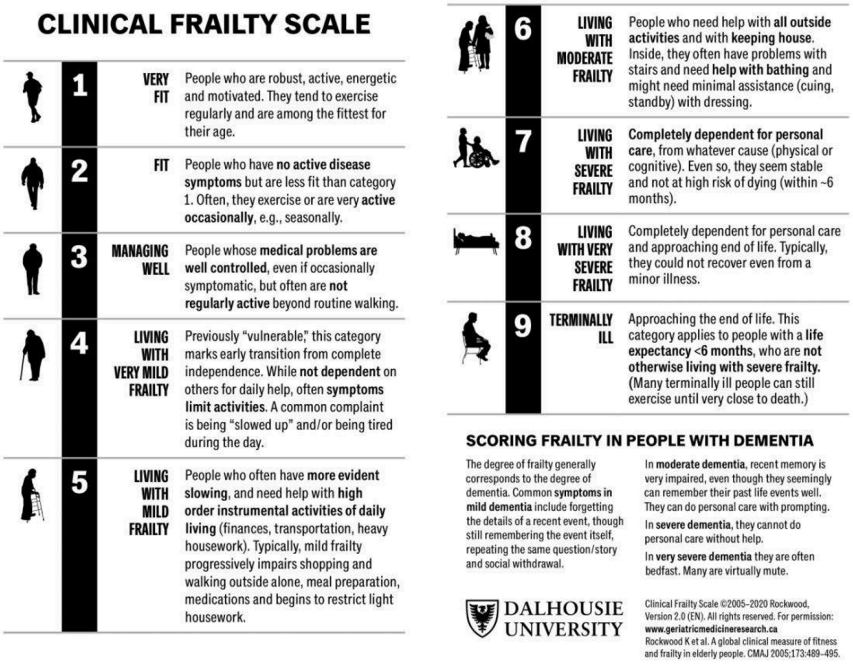
The falls were witnessed. The first was when he was getting up from the dining table at lunch, and he fell onto his buttocks. No LOC/no head impact. The second was when he was walking to the dining hall for dinner and the staff noticed he looked unsteady and was reaching for the side handrail but missed and fell onto right side on outstretched arm. No head impact/no LOC.
Normally walks without gait aids.
He gets help with bathing normally and some assistance with dressing.
Decreased appetite the last 1 day.
Patient looked more SOB to the care staff and less active.

2. **What investigations do you do?**

    - CBC, lytes, liver panel, renal panel, trop, CK, CRP, ECG, CXR, PXR
    - Consider other imaging based on physical exam for trauma

3. **Based on the collateral information, what would be his clinical frailty score?**

    6-7 based on the information provided.



4. **You get your lab work back:**

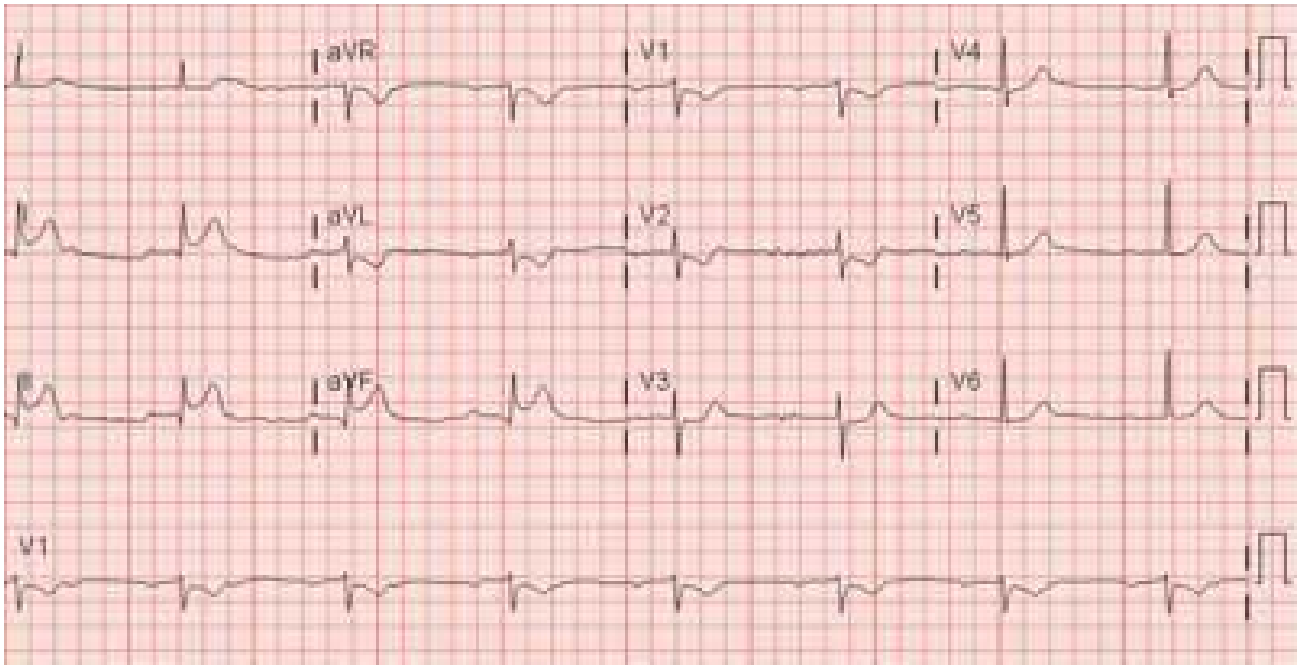
CBC normal
Electrolytes normal
Cr 170 (baseline 140)
Trop 230

CRP 20
BNP 3000
CXR trace bilateral pleural effusions
PXR normal

Next steps?

Order serial troponin. You want to see the ECG given his troponin – you ask the nurses to do ASAP. They tell you he was taken for xray right after labs were drawn and then when he got back he wasn't sitting still for it, so they hadn't gotten to it yet.

5. You review the ECG.



What is your working diagnosis? What are your next steps?

Acute inferior MI with CHF
ASA, Plavix (due to CKD)
Enoxaparin
Consult cardiology staff/senior
Inform patient and family
Discuss GOC with the family

Case C

77 yo F from assisted living facility. She has had 3 days of fatigue, weakness, and complaints of dizziness.

PMHx:
HTN, dyslipidemia, osteoarthritis, urinary incontinence, CAD, COPD, T2DM

Meds:
Ramipril
Atorvastatin
Oxybutynin
ASA
Ventolin
Spiriva
Empagliflozin

You ask her on ROS – no pain, no falls, no headache, no neuro symptoms, no infectious symptoms. She feels dizzy with movement and position changes.

Independent with ADLs (dresses, bathes, and toilets herself). Walks without gait aids. Gets assistance with transportation outside of her facility, and gets help with shopping. She has household cleaning support at the assisted living facility.

Physical exam:
HR 74, **BP** 164/86, **RR** 18, **O2** 93% on RA, **T** 36.5
Resp : clear AE=AE, no inc WOB
Cardiac : normal heart sounds, no pitting edema
Abdo: soft, nondistended, non-tender
Skin: no rashes
Neuro: no lateralizing deficits, GCS 15, PERL 3, no nystagmus, normal cerebellar testing, normal gait. Negative dix-hallpike.
MSK: full ROM all 4 limbs without pain/deformity

1. **Is there any additional information you would like? What investigations, if any, would you do?**

    - Inquire about functional status – ADLs, IADLs, social supports
    - Inquire about recent medication changes
    - Collateral – any mental status changes?
    - Orthostatic vitals
    - CBC, lytes, extended lytes, trop, BUN, CR, CK, CRP, ECG, consider CT head?

2. **Your labs come back.**
   All blood work is normal. ECG normal. CT head normal.

   Your ED pharmacist has done a medication review for the patient and comes to talk with you. He states that all her medications had been stable for the last year or so, except for oxybutynin. She was started on it 1 week ago for urinary incontinence. She was previously trying conservation/lifestyle changes without effect so she was started on this medication. She also tells the pharmacist that she had been using an extra dose because her incontinence symptoms were bothersome and she had a few activities outside the home that she didn't want to have to worry about incontinence for.

   How does this information help you in managing this patient?

   This information should help guide you that you are worried about medication side effects for her presentation today. Specifically you are worried about anticholinergic medication side effects – fatigue, dizziness.

   This should be relayed to the patient and her care providers.

3. **What are your management options for this patient?**

   - Suggest discontinuing oxybutynin, or try reducing dose as alternative.
   - Consider alternatives: topical estrogen vaginal creams, mirabegron
   - Referral to urogyne for other options

4. **How could you help with safe discharge planning for this patient?**

   - Assess frailty score
   - Ask pharmacist to send their note to the patients community pharmacist. Ask request for blister pack to avoid using extra doses
   - Write letter to GP re: concern with medication
   - Ask home care to see about home supports, medication assist etc
   - Connect with caregiver/family
   - Ask PT to assess mobility in ED, need for gait aid?
   - Outpatient geriatrics referral

5. **What is her clinical frailty score?**

   CFS 5