Ground-Level Follies - More than Just a Lift Assist

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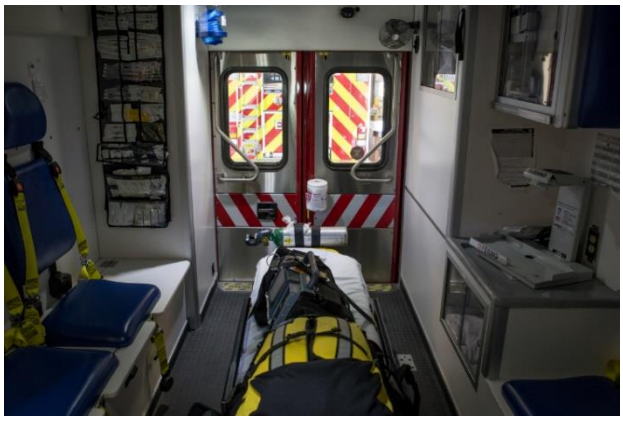

You are dispatched to a ground level fall as a residential home in a suburban area. The dispatch notes state a 79-year-old female has fallen and is unable to get back up. You arrive to find an anxious family member waving from the curb. They inform you that their mother has fallen. You enter the residence to find a clean and well-kept home. You are led down a short hallway to a back bedroom, noting a strong pungent smell as you approach the bedroom. You find an elderly female laying on her left side, who appears to be alert and in no obvious distress. She states that she is just fine and doesn't want to go to the hospital.

Ground level falls are one of the most common fall types in EMS. They are sometimes dispatched as a fall, trauma, sick person, or lift assist. Regardless of how they are dispatched, they are generally met with an eye roll and an often reluctant lights and sirens response. The patients are rarely severely injured, and there is often very little for EMS to do other than transport. However, when we look at the numbers these calls are surprisingly deadly. For all fall patients coming to the ER, mortality is 1.6% for those under 70 years old, and 4.4% for those over 70.[1] When we consider the longer term effects of a fall, it gets much more dire. If you survive the initial injury, you are likely to be discharged without functional independence.[1]The patient has to contend with all the problems brought about by lack of mobility and rehab such as urinary tract infections, sepsis, blood clots, etc. Another study from a trauma center found that 51% of fall admissions were discharged to a Skilled Nursing Facility, and of those 61% would die there.[2]

So how can EMS reduce these numbers? Much as with stroke, our primary intervention is recognition and transport to an appropriate facility. These discussion points will focus primarily on the geriatric population, as that is where the majority of where we see poor patient outcomes. I would encourage you to stop thinking of falls as mechanical vs non-mechanical. We are typically taught this as a major factor guiding assessment. If someone trips on a carpet and falls, we may stop considering a medical cause. If there was a syncopal event, we do a more detailed exam. This is a bit of a red herring. Why did they trip on the carpet that they walk across every day? Are you getting a reliable story? Is the patient minimizing what happened out of embarrassment or shame? Every fall assessment should consist of both trauma and medical components. Mechanical vs non-mechanical is a data point to be gathered, but it should not be guiding your assessment. Walk into these calls assuming they are going to need transport, and that you have to prove that they are safe to stay home.

General Considerations

As with any call, we address any life threats first. If the patient is bleeding severely, unconscious, not breathing, or has any other need for immediate intervention this call becomes much less subtle. If these patients have none of these things, you can progress to a more detailed exam.

Determine if anyone witnessed the fall. Geriatric fall patients are notoriously poor historians so a witness can be helpful. Did they appear to trip over something? Did they collapse to the ground? How have they been feeling lately? They can also help you determine how long they have been on the ground. This is an important point of data to gather when you are considering possible rhabdomyolysis and hypothermia. If the fall was not witnessed, when were they last seen ambulatory? In a home environment they may have seen them 30 minutes ago, but if you are at a nursing facility just after shift change the patient may not have been on the ground anywhere from minutes to hours. For people that live alone, sometimes they have been there for days. The presence of incontinence and clinical signs of dehydration can be helpful clues if the patient does not know how long they have been down.

How does the patient normally ambulate? Do they use a walker, cane, or wheelchair? Were they using it at the time? Baseline ambulation is a factor that can help you determine how far the norm they are now. Look around the surroundings and see if any of these things are present. Are there grab bars in the bathroom? Is the patient supposed to be trying to get out of bed at all? This information will be particularly helpful to the hospital when they are planning discharge.

As you approach the patient she is tracking you well and appears to be aware of what is going on. The family member states that they heard a crash and found the patient on the floor. They immediately called 911. The temperature is noted to be somewhat warm, and there is a heater running in the corner. The patient states that she had gone to bed but woke up with the urge to use the bathroom. She typically uses a walker, which is noted to be nearby, however did not think she needed it just to go to the bathroom. The patient reports that they got out of bed and their “legs just gave out,” causing them to fall to the ground.

Trauma Exam

Head injuries are the most common cause of death for ground level falls.[3] The use of blood thinners dramatically increases this risk.[4] Palpate the entire skull looking for bleeding or traumatic edema. The traditional “goose egg” should be easily noticeable on examination. The presence of head trauma in the elderly fall patient should have you already pushing for transport, and the presence of blood thinners should have you thinking about the nearest trauma center. You can assume that if there is bleeding outside the skull, there is a possibility of bleeding inside as well. Someone should be specifically tasked with finding a medication list or pill bottles to look for the common blood thinners if the patient or bystanders do not know. Palpate the neck and ask about any numbness or tingling in the extremities. If any pain or numbness exists, consider c-spine precautions as per your protocols. Also consider that injuries in the elderly may not present with classic signs and symptoms, so you should have a low threshold for management of potential injuries.

Upper extremity and torso injuries are rarely life threatening in ground level falls.[3] Palpate the ribs for crepitus and be aware of fractures to the distal radius, otherwise known as colles fractures. The wrist classically has the appearance of an upside down fork. This will be painful and most likely the patient has already told you about it.

The next high mortality injury after head injury are pelvic and femoral fractures. This may not be acutely dangerous, but presents high risk for downstream complications. Assessment of pelvic trauma does not seem to have a best practice established, but the general consensus is to apply gentle pressure to the pelvis. Do not aggressively "rock" the pelvis. The pelvis is both highly vascular and capable of holding a lot of blood. The patient not being able to lift one or both legs can be suggestive of a pelvic injury. Have a low threshold for applying a pelvic binder, either a sheet or commercial device. Note the lower extremities for any obvious trauma, but in particular any shortening or rotation of the legs. If there is an isolated mid-femur fracture and you are fairly confident that the pelvis is stable a traction device may be indicated. If any pelvic or lower extremity trauma is suspected this patient should not be asked to move or attempt to ambulate. Minimize manipulation of the hips and pelvis if possible. A scoop stretcher is the ideal tool for getting these patients off the ground.

If any significant trauma is found, you should be considering transport to a trauma center. No, this is not a dramatic or exciting trauma transport, but it is a hugely consequential one. The trauma doctors will not give you a hard time for bringing in an elderly ground level fall, and many are in favor of bringing all falls of this type to a trauma center.

The patient has no complaints of pain and states that she just needs to be helped up. You explain that you would like to briefly check to make sure she doesn't have injuries, which she consents to. You find a small abrasion to her left forehead with no notable edema. The neck and upper extremities are unremarkable. There is no pain on gentle manipulation of the pelvis. The patient is able to lift both legs off the ground without difficulty. No shortening or rotation of the lower extremities is noted. Your partner returns from the bathroom and reports that the patient is taking an anticoagulant, which the family states is for atrial fibrillation. You gently assist the patient to a seated position. The patient appears to briefly dizzy, and you note that they are very warm to the touch.

Medical Assessment

The medical portion of a fall assessment is essentially for generalized weakness. This is a huge topic better covered by a textbook than here, so we will be focusing on the parts of the assessment that are unique for geriatric falls. The AEIOU-TIPS assessment mnemonic is typically used for altered mental status, but does a fine job for generalized weakness as well. If you find stroke symptoms, a presumed new dysrhythmia, hypoglycemia, opiate overdose, hypoxia, or any of a multitude of causes for weakness then stop and address those as you find them. Transport. These are not problems that will get better at home.

Mental status is important to determine, and often must be done on scene. Many fall patients have a diminished mental capacity, and are often from memory care facilities. Talk to their care providers and find out their baseline mental status. A report that “they are normally confused, but this is worse than normal” is an important thing to pass on to the receiving facility. These types of facilities typically only have a few nurses there, who may not be familiar with the patient’s baseline. Find the person in the facility who actually interacts with the patient on a daily basis. They may not have a medical background, but they will often be more useful to you than the nurse. Determine if the patient makes their own medical decisions. If they do have a power of attorney, is it a medical power of attorney (POA)? Not all POAs can make medical decisions. Find out. Have they been called by the facility? You can call them as well. The patient may not want to go, but it is often in their best interest and you may have the ethical and legal obligation to take them if they cannot make that decision for themselves.

Urinary tract infections are a common cause of weakness in the elderly. While the rates of UTI differ significantly based on anatomy at a younger age, they eventually become equal between the ages of 60 and 80.[5] UTIs can rapidly progress to sepsis, which is life threatening. A common EMS folk wisdom is that all elderly patients with weakness have a UTI until proven otherwise. Ask about urinary pain and frequency. If they have a urinary catheter check for color and clarity. Cloudy or dark urine is concerning. If someone helps them go to the bathroom, ask about any unusual odors. Some providers can even smell a UTI with a good degree of accuracy. Transport is indicated here. While a UTI may be uncomplicated for a young person, they can be rapid and deadly for the elderly.[6]

Hot weather is also a common complication for the elderly. Every summer we start going on ground level falls for patients outside gardening or mowing the lawn. You will find them hypotensive but with a normal heart rate. Check to see if these patients are on beta blockers, the most common being metoprolol. These are medications that blocks activation of the sympathetic nervous system, which prevents the body from reacting to dehydration with tachycardia. Instead of the heart rate going up to compensate for lack of blood volume, the blood pressure starts dropping first.

You assess the patient’s vital signs, which are BP 108/72 HR 102 RR 20 Spo2 98% Temp 101.4F BGL 89 EKG Afib. The patient does not know her medical history, however you find a recent discharge summary from the ER which states a history of hypertension and atrial fibrillation. There is no recent trauma reported. The patient reports increasing weakness for several days with frequent burning urination. The stroke assessment is negative. The patient is able to answer all questions, however she is slow to answer and has to occasionally be prompted to answer. The family states that she is usually briskly alert and oriented, and that this is unusual for her.

Getting a Refusal

Make no mistake, these are high-risk refusals. Consider consultation with your medical control, if available. Elderly patients may be highly resistant to going to the emergency room. Common reasons are embarrassment, not wanting to inconvenience anyone, fear of being admitted for a long duration, fear of death, lack of fear of death, and any of a myriad of other reasons. If they do have capacity to refuse, they of course also have the right. It can be helpful to remind them that their families or friends are worried, and it would make everyone feel better if they went to the hospital. Also remind them that this may be something easy to fix and may not require an extended hospital stay. If you can't get them to accept ambulance transport, see if the family can take them, and then assist them to the car. If you do obtain a refusal, make sure to document carefully. State the risks of refusal, including death, and verify that they understand by having them state the risks back to you. Certainly don't clear the call with a "lift assist only" and not write a chart. Before you leave, make sure to "road test" them. Find out how they normally ambulate (cane/walker/etc.) and see if they can ambulate at baseline without assistance. If they are unable, further convincing may be necessary.

The patient is hesitant to go to the hospital, stating that their family member died there, and they don't want to be there for a long time. She states that she is old and doesn't care if she dies soon. You bring family members into the room and explain that they are very worried and that this may be simply a matter of taking antibiotics. Family members also strongly advise the patient to go to the hospital, and eventually she agrees. The patient is moved to the gurney and then to the ambulance. The patient is transported to the hospital and turned over to hospital staff. The patient was found to have a urinary tract infection. A head CT was negative for any bleeding. The patient was discharged the next day.

Conclusion

When thinking about a career in EMS, no one anticipates or is excited for the high volume of geriatric ground level falls. I'd encourage you to not think of these calls as a nuisance, but rather a real opportunity to do meaningful good. These calls are very consequential for the patient, and they deserve thoughtful and considerate care. One day the geriatric ground level fall may be us, and we would expect nothing less.

References

1. Spaniolas K, Cheng JD, Gestring ML, Sangosanya A, Stassen NA, Bankey PE. Ground level falls are associated with significant mortality in elderly patients. J Trauma. 2010 Oct;69(4):821-5. doi: 10.1097/TA.0b013e3181efc6c6. PMID: 20938268.

2. Ayoung-Chee P, McIntyre L, Ebel BE, Mack CD, McCormick W, Maier RV. Long-term outcomes of ground-level falls in the elderly. J Trauma Acute Care Surg. 2014 Feb;76(2):498-503; discussion 503. doi: 10.1097/TA.0000000000000102. PMID: 24458057.

3. Yokota M, Fujita T, Nakahara S, Sakamoto T. Clarifying differences in injury patterns between ground-level falls and falls from heights among the elderly in Japan. Public Health. 2020 Apr;181:114-118. doi: 10.1016/j.puhe.2019.11.020. Epub 2020 Jan 29. PMID: 32006854.

4. Inui TS, Parina R, Chang DC, Inui TS, Coimbra R. Mortality after ground-level fall in the elderly patient taking oral anticoagulation for atrial fibrillation/flutter: a long-term analysis of risk versus benefit. J Trauma Acute Care Surg. 2014 Mar;76(3):642-9; discussion 649-50. doi: 10.1097/TA.0000000000000138. PMID: 24553530.

5. Bettcher CM, Campbell E, Petty LA, et al. Urinary Tract Infection [Internet]. Ann Arbor (MI): Michigan Medicine University of Michigan; 2021 May. Available from: https://www.ncbi.nlm.nih.gov/books/NBK572335/

6. Álvarez Artero E, Campo Nuñez A, Garcia Bravo M, Cores Calvo O, Belhassen Garcia M, Pardo Lledias J; en nombre del Grupo colaborativo de estudio de infecciones urinarias en el anciano. Urinary infection in the elderly. Rev Clin Esp (Barc). 2019 May;219(4):189-193. English, Spanish. doi: 10.1016/j.rce.2018.10.009. Epub 2019 Feb 14. PMID: 30773284.