

Geriatric Falls
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In the last decade there has been a significant paradigm shift with regard to EMS responsibilities, capabilities, and the extent to which pre-hospital treatments have exponentially expanded. In part this is due to the realization that it is rare to find a provider-to-patient ratio of two to one in today's healthcare system which has been strapped and squeezed nearly beyond recognition. The healthcare system asks "why not take advantage" of this favorable provider-to-patient ratio and demand more from the EMS providers. Additionally, with the Time is Brain and Time is Heart Muscle initiatives, the EMTs are expected to diagnose accurately, and treat these time sensitive potentially catastrophic medical emergencies. It is not uncommon for paramedics to provide the entire medical therapy for STEMI patients (nitrates, beta-blockers, aspirin, plavix and heparin bolus) on the fly.

With the introduction to Advanced Medical Life Support training, the EMT is expected to be a "diagnostician", and in no situation does this become more apparent (or necessary) than in the emergency care of the geriatric patient. The geriatric patient, for a variety of reasons, is a diagnostic and therapeutic challenge—and there are plenty of them to go around. The fastest growing population subset in America is people age 85 and older. By 2030, 20% of the U.S. population will be older than 65. The elderly account for 16% of ED visits, and half of all critical care admissions. Geriatric patients can be tough to diagnose because of confounding variables such as:

- Multiple co-existing diseases (diabetes, COPD, etc)
- Altered metabolism (reduced heart, liver and kidney function)
- Multiple medications
- Hardware (pacemakers, vascular access devices, autodefibrillators, shunts, tubes, artificial heart valves and transplanted organs)
- Altered pain perception
- Altered mental status

The geriatric patient is "at risk" and susceptible to a variety of potentially lethal medical and traumatic events—such as falls. *Falls are the most common cause of injury in the elderly population.* In the community setting 30% of persons older than 65 and 56% of patients older than 90 fall each year, and the rate is much higher in nursing homes. Half of patient who fall do so repeatedly, and 5% of falls result in significant fractures. The incidence of back, neck and hip fractures increase in the 6th and 7th decades of life. Elderly patients who fall can die or become permanently disabled, and for this reason falls should not be taken lightly. Falls account for 40% of injury deaths in individuals over age 65.

Geriatric patients are prone to falls for numerous reasons. They may have poor vision, reduced proprioception, and impaired mobility. Many elderly patients require a walker, but may neglect to use this assist device when necessary, and fall as a result. Patients on antihypertensive medications may experience orthostatic symptoms and fall. Others may have cerebrovascular disease, cardiac arrhythmias, or peripheral neuropathy which predispose to a fall.

There are two broad categories of falls: **Intrinsic and Extrinsic**. Intrinsic falls are age and disease-related falls (for example due to **cardiac arrhythmia, seizure or TIA**). Extrinsic falls are mechanical falls due to environmental hazards, slippery surfaces, loose rugs and object on the floor. Distinguishing an intrinsic from and extrinsic fall is critical to the patient's treatment and well-being—and often it is *very difficult to differentiate* one from the other. The patient *may try to minimize the significance of the fall* and state “I tripped” or “I slipped” when in fact he was dizzy or orthostatic. Why is it so important to differentiate between extrinsic and intrinsic etiologies? What if the patient suffered from a transient arrhythmia (SVT, Afib, or Vfib) and fell, but the EMT and emergency physician mistakenly assumed the patient tripped or slipped? The ED assessment would be much more superficial and the patient would likely be sent back home, only to experience a second arrhythmia which could lead to serious hip fracture or death. In a hectic emergency department, of course the staff would much rather perform a simple X-ray, rather than launch into an extensive, lengthy and labor-intensive patient evaluation with EKG, labs, urinary studies, CT of brain and X-rays. My own father-in-law was minimally assessed and misdiagnosed by an emergency physician who assumed he tripped and fell, when in fact it was later discovered he had a brain tumor which had bled.

When a paramedic is called to the scene of an elderly fall victim, it is essential that the EMT take note of the environment and speak to any witnesses. There may be vital clues as to the reason for the fall. The EMT must have a high index of suspicion for intrinsic falls as the etiology. Does the information provided by the patient make sense, or coincide with the scene or witness accounts? Consider the patient's mobility level, chronic medical problems, and medications during the assessment. The EMT must pass his or her concerns along to the ED staff. The EMT must have knowledge of the *differential diagnosis of intrinsic falls*, some of which I have already mentioned. Other causes include electrolyte imbalance, medication reactions (especially sedatives, narcotics and psychiatric meds), hypoglycemia, dehydration, malnutrition, UTI, pneumonia, pacemaker failure, aortic stenosis and Parkinson's Syndrome.

Be aware and suspicious for significant injuries and underlying medical problems even if the fall initially seems insignificant (fell out of bed, from standing position, or out of the chair). The patient may have diminished pain perception and express minimal complaints. **Patients have sustained cervical fractures and spinal cord damage from falling out of bed.** The EMT should take vital signs, with careful attention to the heart rate/rhythm and blood pressure. The physical exam priorities start with the ABC's with protection and immobilization of the spine. A brief neurological exam should include mental status, papillary check and motor function. The secondary survey should include injury assessment with neurovascular check and splinting as indicated.

In conclusion, successful management of the elderly fall victim includes high index of suspicion for--and thorough knowledge of—*the intrinsic causes for geriatric falls* which are often life threatening.