

Trauma MedEd

How We Take Care Of Our Elders

Time for some philosophy again. A paper in Neurology released ahead of print confirms something I'm seeing more and more often. Specifically, hospitals can be bad for you, particularly if you are elderly.

The trauma population that we all see is aging with the overall population. Being older predisposes one to injuries that are more likely to require hospitalization. And unfortunately, being in the hospital can have adverse effects. I'm not just talking about the usual culprits such as medical errors or exposure to resistant bacteria.

The Chicago Health and Aging Project has been tracking a group of elders as they age, and has been making a number of interesting observations. Most recently, they have released information on a correlation between cognitive decline and hospitalization. They tracked nearly 1900 people, of whom 1335 ending up in the hospital for one reason or another (not just trauma). They found that there is a baseline rate of global cognitive decline with age (surprise!). Unfortunately, this rate of decline accelerated 2.4 times in the hospitalized group. Episodic memory scores declined 3.3 times faster, and

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LOCATION: AMSTERDAM, NETHERLANDS

DATE: MAY 10-12, 2015

executive function declined 1.7 times faster. And declines tended to be more pronounced in patients who had more severe illness, longer hospital stay, or advanced age.

There are some issues with the study. It is large, but it is a correlation study nonetheless. Are the effects due to something that happens in the hospital, or are they caused by something not evaluated by the study? It's also not clear to me whether the declines noted are clinically significant in the daily lives of the people studied, or are just a number on some scale.

Bottom line: Some of the "benign" things that we do to patients in the hospital can have a big impact on their functional outcome. Always remember that they are more fragile than the young trauma patients we take care of. That extra fluid bolus, or dose of morphine, exposure to IV contrast, or noisy neighbor that keeps them from sleeping can make a real difference in how they do. Always consider that everything you do to them might kill them. Then seriously reconsider whether you really, really need to order it at all.

Reference: Cognitive decline after hospitalization in a community population of older persons. Neurology, epub ahead of print, March 21, 2012.

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Thoughts On Geriatric Trauma

I've had several requests for a piece on geriatric trauma. We know that elderly patients (officially age > 55) have worse outcomes for the same degree of injury. And as they get older, mortality rises rapidly. Here are some practical tips for trauma professionals.

- For EMS: As I mentioned yesterday, **heed the CDC trauma triage guidelines**. Older patients have better outcomes at trauma centers, so take advantage of it.
- In the ED: **Ask immediately about anticoagulation**. This can cause life threatening situations, especially in the face of intracranial hemorrhage. If your patient is taking anything that interferes with clotting, treat them like a STEMI or stroke patient. Time is of the essence. Draw coags and get rapid access to the CT scanner. Refer to the guidelines I previously published on reversing the usual culprits.
- **Most elderly patients with any degree of head trauma need a head CT**. They can hide bleeding well, until it's too late to save them.
- **Once admitted, treat them very carefully**. Even minor errors (too much fluid, unneeded IV contrast) can cause significant complications.
- **Use as little narcotic as possible**. Acetaminophen and ibuprofen work great. Lidocaine patches may be helpful in many cases. Steer away from narcotics and muscle relaxants as much as possible to avoid altering mental status.
- **Watch sleep patterns**. Sleeping meds are bad, but reducing interruptions in the middle of the night is good (do they really need vital signs taken at 2AM?).
- **Look at the patient's baseline status**. Are they a spry 90 year old, or a demented 70 year old who falls all the time? Have realistic expectations and communicate them with the

family if major procedures or intubation are considered. Sure, we have the technology to fix many things, but at what cost to the patient? The family needs to understand the real likelihood of ICU, tracheostomy, and prolonged or permanent debilitation. Don't make them as miserable as you can make the patient.

Elderly Trauma And The Frailty Index

Worldwide, the population is aging. **Currently in the US, about 1 in 8 people are considered elderly (age >= 65)**. In 15 years, this number is expected to double to 1 in 4.

But as every trauma professional knows, there are the elderly, and then there are the elderly. What do I mean by this? I've seen 50 year olds who look and act like they are 80, with a medication list 10 deep. And I've also seen 90 year olds who are still ballroom dancing with the ladies.

Can we tell these cohorts apart, and do we need to? Sure, you can apply the "eyeball" test, but it's not always accurate. Well, there are a number of **frailty indexes** that have been developed that try to make this process a bit more objective. The trauma group in Tucson looked at frailty index as a predictor of hospital disposition to see if it could offer any assistance in discharge planning.

Here are the factoids:

- 100 consecutive patients aged 65 or more were studied over a one year period at a Level I trauma center
- Frailty was calculated using the **Canadian Study of Health and Aging Frailty Index**, using 50 of the demographic, comorbidity, medication, social history, activities of daily living, and general mood variables
- **Overall, patients had moderate injury** with average ISS 14, AIS-Head 2, and GCS 3
- **69% of patients had a favorable outcome** (discharged to home or rehab) vs 31% unfavorable outcome (skilled nursing facility or death)
- **Frailty index was highly and significantly correlated with unfavorable outcome**

- **Age 65 or more alone was not predictive of unfavorable outcome**

Bottom line: Just the fact that a patient is older does not mean that they are more likely to do poorly. The frailty index (FI) used in this study includes 50 variables, which indicates how complex this concept is. This scale has been used in non-trauma patients, and is now validated for trauma. Although somewhat complicated due to the sheer number of variables, it appears that this tool may be valuable in predicting discharge disposition if applied soon after admission. And it also raises the interesting question of whether hospital interventions may be able to change a predicted unfavorable outcome into a favorable one.

Reference: Predicting hospital discharge disposition in geriatric trauma patients: is frailty the answer? J Trauma 76(1):196-200, 2014.

The Medical Orthopaedic Trauma Service

Our population is aging, and falls continue to be a leading cause of injury and morbidity in the elderly. Unfortunately, many elders have significant medical conditions that make them more likely to suffer unfortunate complications from their injuries and the procedures that repair them.

A few hospitals around the world are applying a more multidisciplinary approach than the traditional model. One example is the Medical Orthopaedic Trauma Service (MOTS) at New York-Presbyterian Hospital/Weill Cornell Medical Center. Any elderly patient who has suffered a fracture is seen in the ED by both an emergency physician and a hospitalist from the MOTS team. Once in the hospital, the hospitalist and orthopaedic surgeon try to determine the reason for the fall, assess for risk factors such as osteoporosis, provide comprehensive medical management, provide pain control, and of course, fix the fracture.

This medical center recently published a paper looking at their success with this model. They retrospectively reviewed 306 patients with femur fractures involving the greater trochanter. They looked at complications, length of stay, readmission rate and post-discharge

mortality. **No change in length of stay was noted**, but there were **significantly fewer complications**, specifically catheter associated urinary tract infections and arrhythmias. The readmission rate was somewhat shorter in the MOTS group, but did not quite achieve significance with regression analysis.

Bottom line: This type of multidisciplinary approach to these fragile patients makes sense. Hospitalists, especially those with geriatric experience, can have a significant impact on the safety and outcomes of these patients. But even beyond this, all trauma professionals need to look for and correct the reasons for the fall, not just fix the bones and send our elders home. This responsibility starts in the field with prehospital providers, and continues with hospital through the entire inpatient stay.

Reference: The medical orthopaedic service (MOTS): an innovative multidisciplinary team model that decreases in-hospital complications in patients with hip fractures. J Orthopaedic Trauma, ePub ahead of print, doi: 10.1097/BOT.0b013e3182242678, Aug 27, 2011.

Falls In The Elderly: The Consequences

Falls among the elderly are a huge problem. Our trauma service typically has 6-12 elders who have sustained significant injuries on it at any given time. **About a third of people living at home over the age of 65 fall in a given year. At 80 years and up, half fall every year.**

Because of this, falls are the leading cause of ED visits due to an injury for those over 65. **What exactly are the societal consequences of all these falls?** A yet to be published study from the Netherlands looked at injuries, costs and quality of life after falls in the elderly.

The top 5 most common injuries included simple wounds, wrist and hip fractures, and brain injuries. Although hip fracture typically was #5 in the 65-74 age groups, it was uniformly #1 in the 85+ group. Patterns were similar in both men and women. Interestingly, hip fractures were by far the most expensive, making up 43% of the cost of all injuries (total €200M). The next closest injuries by total cost, superficial injuries and femur fracture, made up only 7% of the total each!

As you can imagine, quality of life suffered after falls as well. A utility score based on the EQ-5D, a validated quality of life score, was lower in fall victims. Even after 9 months, this score did not return to baseline. About 70% of elders who were admitted after their falls described mobility problems and 64% had problems with their usual activities. Over a quarter expressed problems with anxiety or depression.

Bottom line: An array of falls prevention programs are available. They need to be more aggressively implemented to reduce costs and improve the quality of life of our elders.

Reference: Social consequences of falls in the older population: injuries, healthcare costs, and long-term reduced quality of life. J Trauma (in press), 2011.

Effect Of An In-Hospital Falls Prevention Program

The Centers for Disease Control (CDC) has developed a neatly packaged falls prevention program that clinicians can apply to their elderly patients. Of course, there's a cute acronym (STEADI = Stopping Elderly Accidents, Deaths, and Injuries), and a lot of slickly packaged reference material. The trauma group at Parkland wondered if the application of this outpatient program on an inpatient population would be helpful.

They looked at elderly patients (age>65) who were admitted for falls. The patients went through STEADI evaluation and interventions, and were compared with a group of historical controls from the prior year.

Here are the factoids:

- 218 patients went through the STEADI process, and were compared with 194 controls
- The usual demographics appeared to be the same in both groups
- The fall rate in-hospital was 4.1% for both groups (!)
- The fall recidivism rate (fell after discharge) was also the same (2.8% STEADI vs 2.1% controls)

STEADI consists of a number of assessments, including looking for medical conditions and medications that may

impair mobility, visual problems, gait and balance testing, footwear evaluation, cognitive screening, and home evaluation. This program was modified by the authors for inpatient use, although the exact modifications were not listed in the abstract.

Bottom line: The application of the CDC STEADI program did not appear to affect falls in-hospital or those after discharge. The authors question whether maintaining the resources (\$) to implement this program is justified. The paper does raise that question, but it is not clear what modifications were made to the full program to tailor it to an inpatient population. The fact that nearly 1 in 20 elderly patients are falling in the hospital is concerning, with or without STEADI. What the abstract does confirm is that elderly falls are a huge problem. The CDC notes that 1 in every 3 patients age 65 and older will fall each year! Further evaluation of STEADI and other similar programs is essential to decrease the morbidity and mortality of falls in this age group.

Reference: UnSTEADI: Implementation of the CDC fall prevention program does not prevent in-hospital falls or reduce fall recidivism rates. Presented at EAST 2015, Paper 16.

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