AOTRAUMA

Orthogeriatrics—Clinical Summary Document

# Geriatric fracture patient: Comprehensive geriatric assessment

Preoperative assessment of the functional, cognitive, and physical health status of elderly adults is essential to determine procedural risk, anticipate complications, and predict prognosis. Attention to these areas will assist in optimizing operative and postoperative treatment plans, as well as enhancing patient outcomes.

## Key Points:

- Specific evaluation of functional, cognitive, and physical health status is essential for all geriatric patients.
- There are simple bedside tools available to assist with these assessments (eg, Parker Mobility Scale, Mini-Cog, or Confusion Assessment Method).
- Evaluation of preoperative mobility for dementia, delirium, and polypharmacy is important for maximizing outcomes and predicting prognosis.

## Functional status/ functional ability

For most patients, functional status (along with cognitive status) is a more robust predictor of surgical outcomes than physical health and comorbidity. Functional status can be rapidly assessed with a number of validated approaches including the following:

1. **ADL/IADL assessment** (for all patients)
   Activities of daily living (ADLs) and instrumental activities of daily living (IADLs) are simple ways to assess a patient's recent functional status. ADL and IADL deficiencies predict poorer prognoses.

| ADLs | IADLs |
|---|---|
| Bathing | Self-administration of medications |
| Dressing | Food shopping |
| Toileting/continence | Meal preparation |
| Transferring (bed to chair) | Managing finances |
| Grooming | Using telephone |
| Feeding | Driving |
| | Housekeeping |
| | Laundry |

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2. **New Mobility Scale (Parker Mobility Scale)**
This is a simple evaluation of prefracture mobility and has been shown to correlate with postoperative outcomes.

| MOBILITY | No Difficulty | With Aid | With help from another person | Not at all |
|---|---|---|---|---|
| Able to get about the house | 3 | 2 | 1 | 0 |
| Able to get out of the house | 3 | 2 | 1 | 0 |
| Able to go shopping | 3 | 2 | 1 | 0 |
| | | | | |
| One year mortality for NMS: | | 2 | 1 | 0 |

3. **Timed Up and Go Test (TUG)** (for ambulatory patients, but can also be used postoperatively).
This simple functional test measures the speed at which the patient can arise from a standard armchair, walk 3 meters, turn around, and sit back down in the chair. Patients may use any customary assistive device. After performing one practice trial, the time results of two subsequent trials are averaged. Time > 14 seconds at baseline is considered a high risk for falls. TUG time > 56 seconds 4 days after hemiarthroplasty predicts dependence on assistive devices at 2 years.

4. **Additional relevant questions to screen for functional impairment:**
Have you had any weight loss in the past 6 months?
Have you had any falls in the past 6 months?

## Cognitive status/cognitive ability

1. Screen for dementia in patients with stable cognition using the **Mini-Cognitive Assessment** Instrument **(Mini-Cog)**. The Mini Cog enables rapid screening for dementia in a patient at their cognitive baseline (not delirious). This simple assessment has been well validated and compared to more comprehensive assessments such as the Mini-Mental Status examination.

   **Step 1.** Ask the patient to repeat three unrelated words

   **Step 2**. Ask the patient to draw a clock, and set the time to 10 minutes after 11 (11:10). A correct response is to draw a circle with the numbers in their approximately correct positions, with the hands pointing to the 11 and 2. (two points for correct clock, zero point for incorrect clock)

   **Step 3.** Ask the patient to recall the three items from **Step 1**. (one point for each item recalled correctly)

   **Scoring:**
   **Zero to two points:** Positive screen for dementia
   **Three to five points:** Negative screen for dementia

2. Evaluate delirium (in patients with unstable/changing cognition) with the Confusion Assessment Method (CAM). Delirium can have reversible causes (eg, pain, hypoxia, medications, infection, constipation, or urinary retention) and is also a marker for poor physical and cognitive outcomes. It is more common in patients with an underlying baseline cognitive impairment. The CAM enables rapid diagnosis of delirium in a patient with acutely altered mental status. The information for this assessment can typically be obtained during the course of a normal history and consists of four criteria related to the altered mental status:

1. **Acute onset/fluctuating course** (chronic cognitive impairment is not delirium)
2. **Inattention** (difficulty keeping track of current conversation)
3. **Disorganized thinking** (rambling conversation, incoherent ideas, hallucinations, or delusions)
4. **Altered level of consciousness** (hyperalert or lethargic)

   Delirium is diagnosed when criteria **1 and 2**, **and** either **3** or **4** are present.

## Physical health and assessment for comorbidity

The history and physical exam continue to be the cornerstone for optimizing the geriatric fracture patient for surgery. Rapidly identifying unstable medical conditions is essential, and stopping some medications that are problematic in this acute setting (eg, anticholinergic medications such as diphenhydramine or many antihypertensive medications) is important to perioperative and postoperative outcomes.

Focused questions and physical exam with attention to the following:

- Circumstances of fall and injury (to identify medical contributions to fall)
- Screening for other injuries
- Past medical history and recent hospitalizations
- Previous screening, diagnosis, and treatment for osteoporosis
- Previous surgical, anesthetic complications, including delirium
- Medication review and possible effects of polypharmacy
- Physical exam to exclude active medical problems (eg, pulmonary edema, stroke, aortic stenosis, or hemodynamic instability)
- Basic laboratory assessment (blood count, basic blood chemistry analysis, electrocardiogram, or 25-OH vitamin D levels)
- For anemic patients without symptoms, keeping postoperative hemoglobin > 8 g/dL appears to produce similar outcomes to more liberal transfusion strategies.

## Recommended readings


1. **Malani PN.** Functional status assessment in the preoperative evaluation of older adults. *JAMA*. 2009 Oct 14;302(14):1582–1583.
2. **Svensson O, Strömberg L, Ohlén G, et al.** Prediction of the outcome after hip fracture in elderly patients. *J Bone Joint Surg Br.* 1996 Jan;78(1):115–118.
3. **Parker MJ, Palmer CR.** A new mobility score for predicting mortality after hip fracture. *J Bone Joint Surg Br.* 1993 Sep; 75(5):797–798.
4. **Laflamme GY, Rouleau DM, Leduc S, et al.** The Timed Up and Go test is an early predictor of functional outcome after hemiarthroplasty for femoral neck fracture. *J Bone Joint Surg Am.* 2012 Jul 3;94(13):1175–179.
5. **Borson S, Scanlan J, Brush M, et al.** The mini-cog: a cognitive 'vital signs' measure for dementia screening in multi-lingual elderly. *Int J Geriatr Psychiatry.* 2000 Nov;15(11):1021–1027.

6. **Inouye SK, van Dyck CH, Alessi CA, et al.** Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Ann Intern Med.* 1990 Dec 15;113(12):941–948.
7. **Carson JL, Terrin ML, Noveck H, et al.** Liberal or restrictive transfusion in high-risk patients after hip surgery. *N Engl J Med.* 2011 Dec 29;365(26):2453–2462.

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