Geriatric Assessment Tools

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ABSTRACT

In addition to medical diseases, psychological, social, cognitive, and functional issues influence the health of older persons. Therefore, the traditional medical assessment alone is often not enough to evaluate the older population with multiple comorbidities. Out of this recognized need, the geriatric assessment has been developed, which emphasizes a broader approach to evaluating contributors to health in older persons. Geriatric assessment uses specific tools to help determine patient’s status across several different dimensions, including assessment of medical, cognitive, affective, social, economic, environmental, spiritual, and functional status. This article reviews specific tools that practitioners can use in their screening for the following geriatric syndromes: hearing impairment, vision impairment, functional decline, falls, urinary incontinence, cognitive impairment, depression, and malnutrition. This article also reviews spiritual, economic, and social assessment. By identifying conditions that are common in the elderly, geriatric assessment can provide substantial insight into the comprehensive care of older persons, from those who are healthy and high-functioning to those with significant impairments and multiple comorbidities. Mt Sinai J Med 78:489–497, 2011. © 2011 Mount Sinai School of Medicine

Key Words: elderly, geriatric assessment.

In addition to medical diseases, psychological, social, cognitive, and functional issues influence the health of older persons. Therefore, the traditional medical assessment (history of present illness, past medical history, review of systems, physical examination, and laboratory evaluation) alone is often not enough to evaluate the older population with multiple comorbidities. Out of this recognized need, the geriatric assessment has been developed, which emphasizes an approach different than the standard medical evaluation. Geriatric assessment uses specific tools to help determine patient’s status across several different systems, including assessment of medical, cognitive, affective, social, economic, environmental, spiritual, and functional status (Figure 1).

Traditional medical assessment alone is often not enough to evaluate the older population with multiple comorbidities.

For the medical assessment, the standard physical examination and past medical history-taking is augmented by an evaluation of possible geriatric syndromes including hearing impairment, cognitive impairment, functional status, depression, falls, gait disorder, and incontinence. The social assessment involves an in-depth history-taking, which may involve obtaining information from collateral sources such as family, neighbors, and friends. The psychological assessment includes screening for depression,
which complements a cognitive assessment including screening for dementia. The purpose of this article will be to review the specific tools that practitioners can use in their screening for geriatric syndromes when evaluating patients. For each of the dimension of geriatric assessment, there is no gold-standard screening instrument. Similarly, there are no “minimum datasets” of outpatient or inpatient geriatric assessments. Rather, the choice of assessment tools should depend upon the clinical situation, practice resources, and comfort of the clinician with the instruments.

MEDICAL ASSESSMENT TOOLS

Patients often think that some problems, such as incontinence and falls, are a normal part of aging, and therefore are unlikely to report them as a problem to their physicians. Screening tools help to learn this information from patients.

Falls/Gait Disturbance

More than one-third of community-dwelling older persons fall each year, and falls are independently associated with functional decline. Also, patients who have fallen are at high risk for falling again and having resulting injuries. Because older persons frequently attribute falls to normal aging, it is very important to ask older patients if they have fallen in the last year, at their initial visit and at least annually. The use of a previsit questionnaire can help elicit this information efficiently.

Tests of gait, balance, and functional reach (Table 1) help to assess patients’ risk of falling. Underlying balance and gait disorders can best be detected by observing patients walking and performing balance maneuvers. To save time, this evaluation can be performed while the patient is entering or leaving the examining room. Several additional simple tests of balance and mobility can also be performed quickly, including the ability to maintain a side-by-side, semi-tandem, and full-tandem stance for 10 seconds each; resistance to a nudge; and stability during a 360-degree turn. One can assess quadriceps strength by observing an older person arising from a hard armless chair without the use of his or her hands. Slow gait speed is also a helpful marker for recurrent falls as well as reduced survival. Patients whose gait speed exceeds 0.8 m per second are likely to live beyond the median life expectancy for age and sex, whereas those whose gait speed is <0.8 m per second are likely to have shorter survival. The timed “up and go” test is a measure of the patient’s ability to rise from an armchair, walk 3 m (10 feet), turn, walk back, and sit down again; those who take longer than 20 seconds to complete the test should receive further evaluation as well.

For patients who have tested positive for falls, a structured visit note (Figure 2; can be downloaded from http://www.geronet.ucla.edu/professionals/patient-care-resources) can be used at follow-up visits. Physicians should then inquire about the circumstances of the fall. Patients with recurrent falls or falls with any injury should receive a more detailed evaluation, including assessment of all medications, gait and balance, orthostatic blood pressure readings, and vision testing. These are also outlined in Figure 2.

Hearing Impairment

Hearing impairment affects up to one-third of persons aged >65 years. Independently, it is associated with reduced cognitive and physical function, and reduced social involvement. It is also often under-recognized and therefore undertreated, and again often not self-reported by patients. There are several methods to help screen for hearing loss (Table 2). One simple method for a busy practitioner is simply to rely on the patient’s own subjective report of hearing loss. This involves asking patients whether they feel they have hearing impairment. An affirmative answer is considered a positive test for hearing loss, and patients should be referred to an audiologist.
Table 1. Simple Tests of Lower Extremities: Strength, Balance, Gait, and Fall Risk.

<table>
<thead>
<tr>
<th>Question/Test</th>
<th>Time to Administer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timed up &amp; go</td>
<td>&lt;1 minute</td>
<td>Sensitivity 88%, specificity 94% compared with geriatrician’s evaluation using cutpoint &gt;15 seconds</td>
</tr>
<tr>
<td>Gait speed &gt;10 m</td>
<td>&lt;30 seconds</td>
<td>&gt;13 seconds predicts recurrent falls (likelihood ratio: 2.0, 95% CI: 1.5–2.7)</td>
</tr>
<tr>
<td>Office-based maneuvers</td>
<td>2–3 minutes</td>
<td>Some are part of Performance-Oriented Assessment of Mobility</td>
</tr>
<tr>
<td>Observed gait</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to nudge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tandem/semitandem stand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rising from chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>360-degree turn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functional reach</td>
<td>2 minutes</td>
<td>Adjusted odds ratios for &gt;2 falls within 6 months:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.1 if unable to reach</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.0 if reach ≤6&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.0 if reach ≥6&quot; but &lt;10&quot;</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval.

Another alternative is the whisper voice test, administered by whispering 3 to 6 random words at a set distance from the patient’s ear and then asking the patient to repeat the words. Patients fail the screening if they are unable to repeat half of the words correctly. This should be done out of the patient’s sight line to prevent lip reading, and the other ear should be covered.

The most accurate office test is the AudioScope 3 (Welch Allyn, Inc., Skaneateles Falls, NY), a handheld otoscope with a built-in audiometer. It should be set at 40 dB to evaluate hearing loss in older persons. A pretone at 60 dB should be delivered, with 4 subsequent tones (500, 1000, 2000, and 4000 Hz), all at 40 dB. If patients cannot hear the 1000 or 2000 Hz in both ears or both in one ear, they then need more formal audiometric testing.

Finally, a screening tool that uses sociodemographic information coupled with 3 simple questions (Table 2) has high accuracy in identifying older persons with hearing loss.9

Visual Impairment

Visual impairment is a common sensory deficit in the older population; all 4 major eye diseases (cataracts, macular degeneration, diabetic retinopathy, and glaucoma) increase in prevalence with age. Most older persons have presbyopia and require corrective lenses. Visual deficiencies are also independently associated with increased risk of falling, functional decline, and depression.10

The Snellen eye chart is standard method of screening for visual impairment. This requires the patient to stand 20 feet from the chart and read letters, using corrective lenses. Patients fail the screening if they are unable to read all of the letters on the 20/40 line with their eyeglasses on, and should then be referred for further evaluation by an ophthalmologist.

Given the high prevalence of eye diseases in the older population and the potential for adverse health consequences of impaired vision, a visit with an optometrist or ophthalmologist is recommended every 1 or 2 years by the American Academy of Ophthalmology11 and the American Optometric Association.12

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Urinary Incontinence

Urinary incontinence is under-reported as well, often due to patients’ embarrassment or belief that incontinence is a normal part of aging. In fact, it is a very common problem in both older men and women, and can have deleterious effects on their lives, including urinary tract infections, sleep disruption with subsequent falls, and pressure ulcers. It is also a marker for higher mortality in older adults.13 There are many treatment options available, including behavioral, pharmacologic, and surgical.

A simple and efficient screen for urinary incontinence is a 2-item questionnaire that can be administered by the provider: (1) “In the last year,
**Fig 2. UCLA Visit Form: Falls/Mobility Problems.**

**Abbreviations:** BP, blood pressure; Ca, calcium; dc’d, discontinued; EKG, electrocardiogram; OA, osteoarthritis; P, pulse; PPI, proton pump inhibitor; PT, physical therapy; w/o, without.

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### Malnutrition/Weight Loss

The term “malnutrition” has been used to refer to a wide spectrum of deficiencies (e.g., protein-energy, vitamins) and excesses (e.g., obesity, hypervitaminosis) that place older persons at risk for other health conditions, functional decline, and death. Nutritional disorders are very common in older persons, the most common one being obesity (body mass index > 30 kg/m²) in community-dwelling...
Table 2. Simple Tests of Hearing Loss.

<table>
<thead>
<tr>
<th>Question/Test</th>
<th>Time to Administer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audioscope</td>
<td>1–2 minutes</td>
<td>Sensitivity 87%–90%, specificity 70%–90%</td>
</tr>
<tr>
<td>Whisper test</td>
<td>1 minute</td>
<td>Sensitivity 80%–100%, specificity 82%–89%</td>
</tr>
<tr>
<td>Hearing handicap</td>
<td>2 minutes</td>
<td>Sensitivity 48%–63%, specificity 75%–80% at cutpoint &gt;8</td>
</tr>
<tr>
<td>Inventory for the elderly NHANES battery</td>
<td>&lt;2 minutes</td>
<td>Sensitivity 80%, specificity 80% at cutpoint of &gt;3</td>
</tr>
</tbody>
</table>

Abbreviations: NHANES, National Health and Nutrition Examination Survey.

older persons. Obesity is associated with functional decline and more comorbidities, such as type 2 diabetes mellitus and osteoarthritis. Weight loss has commonly been used to define undernutrition and also predicts increased mortality. Although weight loss may be voluntary, any weight loss in an older person raises concern for underlying illnesses (eg, malignancy, depression) or social/functional barriers (poverty, inability to shop or prepare meals).

Although weight loss may be voluntary, any weight loss in an older person raises concern for underlying illnesses (eg, malignancy, depression) or social/functional barriers (poverty, inability to shop or prepare meals).

At the initial visit, patients should be weighed and asked about previous weight loss in the last 6 months. Height should also be obtained in order to calculate body mass index, which should be calculated at the initial visit and when there is a significant change in weight.

There are also several self-administered screening instruments available. The Mini-Nutritional Assessment16,17 predicts adverse outcomes that may or may not be related to the nutritional components of the instrument. The 4-item Simplified Nutrition Assessment Questionnaire asks about appetite and how food tastes, and has been associated with weight loss in a cross-sectional study.18

Malnutrition in the hospitalized older patient is common and has been associated with higher mortality, delayed functional recovery, and higher rates of nursing-home use.19 Persistent decreased intake and weight loss in the hospital should prompt investigation. Malnutrition in the hospitalized older patient can also be a marker for another occult process. For example, evaluation of poor oral intake may reveal an underlying delirium or untreated pain causing decreased oral intake. Measuring albumin and prealbumin, though not a specific indicator of malnutrition, can also be helpful in assessing prognosis. Albumin is also affected by inflammatory states related to concomitant illness, stress, and traumatic or surgical conditions. Its half-life is 18 days, and so measurement at admission may provide a nutritional baseline. Prealbumin, with a half-life of 2 days, may be more helpful to monitor response to nutritional treatment, although it is also affected by inflammatory states.

Polypharmacy

Polypharmacy is very common in the older population, associated with adverse drug reactions, and can result in hospitalizations and increased morbidity. Patients often visit >1 healthcare provider and fill prescriptions at multiple pharmacies. Therefore, monitoring the many medications patients are on for drug-disease and drug-drug interactions is imperative at the initial and every follow-up visit. There are several ways to perform this task. Providers can ask their patients to bring all of their medications in to their visits with them, including over-the-counter medications. Previsit questionnaires can be completed prior to the initial visit with a complete list of patients’ prescription and nonprescription medications. Office staff can then review these medication lists with patients and bring any discrepancies to the physician’s attention at the time of the patient’s visit.

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Clinicians can easily review drug-drug interactions with readily available drug software programs, and should do so when prescribing a new medication. Some programs can be used on smartphones and personal digital assistants.

FUNCTIONAL ASSESSMENT TOOLS

Functional performance can be viewed as a measure of overall impact of health conditions in the context of a patient’s environment and social support system. Therefore it is essential to assess the patient’s functional status at the initial visit, and any change in functional status should prompt further investigation. This can be assessed at 3 levels: basic activities of daily living (BADLs), instrumental activities of daily living (IADLs), and advanced activities of daily living (AADLs). The BADLs are the tasks that patients need to be able to complete on their own, or have assistance to complete, in order to be able to live in their own residences: transferring, toileting, bathing, dressing, continence, and feeding. The IADLs are the abilities one needs to maintain an independent household: shopping for groceries, driving or being able to use public transportation, telephone skills, meal preparation, housework, home repair, laundry, taking medications, and handling finances. Patients may be dependent in \( \geq 1 \) IADLs but still able to live at home alone given they are independent in their ADLs and have family support to help pay bills, for example. Understanding the areas of impairment is essential to being able to meet the patient’s needs with appropriate resources and also often helps with diagnosis. For example, in a patient with dementia, the inability to feed oneself usually is indicative of an advanced dementia. Measurement of AADLs (societal, family, recreational, and occupational tasks) can also be helpful in detecting changes in functional status prior to onset of disability.

These questions can be completed prior to the initial visit with a use of a previsit questionnaire (Figure 3; can be downloaded from http://www.geronet.ucla.edu/professionals/patient-care-resources) or can be formally asked at the initial visit. There are also several instruments that incorporate these functions into quality-of-life questions (eg, Study Short-Form 36 and Short-Form12). Asking older persons about how they spend their day also gives insight into higher level of functioning of healthier older persons, when they are still independent in their ADLs and IADLs.

COGNITIVE ASSESSMENT TOOLS

Detection of cognitive impairments early can identify treatable conditions, such as ischemic brain disease, when risk factors can be then better controlled, helping to prevent progression of disease. Detection of Alzheimer’s disease can lead to appropriate pharmacologic treatment and improvements in patient safety by garnering appropriate resources to assist with ADLs and IADLs. Early detection may also help facilitate long-term planning, including identifying preferences for care and sources of financial and caregiver support that will be important as the disease progresses.

The Mini-Mental State Examination, a 30-item interviewed administered assessment, is a validated and commonly used screening tool. Expected scores are based on age and educational level. There are also several shorter validated screens for cognitive impairment listed in Table 3. These include the Mini-Cog test, which combines 3-team registration and recall with clock drawing. The clock-drawing component of these tests helps evaluate higher executive functioning and is less influenced by educational level and culture.

It is important to note that scoring perfectly on any cognitive screening test does not preclude the diagnosis of dementia. Functional-status performance is interpreted along with cognitive testing in order to diagnose level of dementia. Highly educated persons may score perfectly but have deficiencies in insight and judgment. Conversely, patients may score less than optimally on a screening test because of language barriers or education, but have good performance when tested in greater depth.

**Scoring perfectly on any cognitive screen does not preclude the diagnosis of dementia.**

PSYCHOLOGICAL ASSESSMENT TOOLS

Depression and other affective disorders are common in the older population. Moreover, older adults may
Table 3. Examples of Brief Screening Questions for Cognitive Impairment.22

<table>
<thead>
<tr>
<th>Task</th>
<th>No Help Needed</th>
<th>Help Needed</th>
<th>Who Helps?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding yourself</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting from bed to chair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting to the toilet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting dressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bathing or showering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking across the room (includes using cane or walker)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the telephone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking your medicines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparing meals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing money (like keeping track of expenses or paying bills)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderately strenuous housework such as doing the laundry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping for personal items like toiletries or medicines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping for groceries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Climbing a flight of stairs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting to places beyond walking distance (e.g., bus, taxi, or car)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: MMSE, Mini-Mental State Examination.

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not volunteer that they are depressed, but instead present with vague complaints as self-reported fatigue, or more specific symptoms of anorexia with subsequent weight loss and sleep disturbance. Therefore, it is important for physicians to screen for depression in patients for whom there is any concern. The Patient Health Questionnaire-9 is a validated self-administered tool. A score of \( >10 \) has a sensitivity of 88% and a specificity of 88% for major depression. A 2-item version (PHQ-2) has been used for screening. This screener asks the patient, “Over the past 2 weeks, how often have you been bothered by any of the following problems? Little interest or pleasure in doing things. Feeling down, depressed, or hopeless.” Responses are scored as follows: \( 0 = \text{not at all}, \ 1 = \text{several days}, \ 2 = \text{more than half the days}, \ 3 = \text{nearly every day}. \) Persons who score \( \geq 3 \) have a 75% probability of having a depressive disorder.

In patients who may not be able to complete a self-administered tool (secondary to cognitive or visual impairment), the Geriatric Depression Scale may be more helpful. This tool is physician administered with yes-or-no answers, and available in 5-item, 15-item, and 30-item versions.

Social Assessment

There is a great deal of interdependency between patients’ social situations and their functional status. For example, persons dependent in ADLs or IADLs must have sufficient social or financial support to meet their needs. If patients are healthy but have no social support (family or friends), physicians should inquire who would help them should they have an increased level of need. For patients who are dependent in functional activities, it is important to ask who helps them perform each specific task (Figure 3; can be downloaded from http://www.geronet.ucla.edu/professionals/patient-care-resources). A variety of private and public resources can provide further assessment if the initial screening indicates a problem. Home assessments provided by home health social worker can also help further reveal levels of support at home.

Economic Assessment

The current economic crisis has affected many older Americans, who are often on fixed incomes. More older Americans are filing for bankruptcy, having lived on credit and emptied their retirement funds in the face of lost assets and increasing living and medical expenses. Older Americans are also helping their children more, given the recession’s effect on younger Americans as well. Older persons who are dependent in their ADLs and/or IADLs, and do not have family readily available to fulfill these needs, may be able to tap into their savings or equity (eg, through reverse home mortgages) to pay for caregivers, though often as a last resort. If personal resources are not available, they can apply for caregiver support through state or federal agencies. Economics plays a large role in undernutrition, as discussed earlier, as well as ability to buy medications. Therefore, the physician should probe as to whether the patient has sufficient social and economic support. Patients sometimes are reluctant to admit that they are having difficult financial times. Physicians can review insurance coverage. Patients with Medicaid may qualify for additional medical or social benefits. Physicians can consult social workers to help explore if patients qualify for Medicaid or other state or federal assistance programs. Physicians can also help connect patients to financial assistance programs offered by drug manufacturers to help lower the cost of specific medications.

Patients with Medicaid may qualify for additional medical or social benefits.

Spiritual Assessment

Spirituality can have a significant influence on overall health. Though there are no formal assessment instruments that are common in clinical use, physicians should inquire whether spiritual or religious beliefs play an important role for patients. This can help give insights into their care plan and goals of care. In the hospitalized setting, chaplaincy support can be very helpful in helping to align patients’ medical decisions with their belief system.

Conclusion

Geriatric assessment is an essential part of the comprehensive care of older persons, from the healthy and high-functioning to those with significant impairments and multiple comorbidities. Many of the above assessments can be completed prior to the initial visit with the use of a previsit questionnaire (see http://www.geronet.ucla.edu/images/stories/docs/professionals/Geri_Pre-visit_Questionnaire.pdf for an
example). Physicians can then review areas of concern with patients at their first visit, and schedule follow-up visits to address issues further as needed. In the future, implementation of the above screening strategies and validated tools should become easier with advances in technology and electronic medical records. In addition, with the advent of innovations in practice, such as the Patient-Centered Medical Home, many of the performance-based initial screens will be performed by office staff. These approaches should, in turn, help these assessments become more efficient and less time-consuming to incorporate into daily practice.

DISCLOSURES

Potential conflict of interest: Nothing to report.

REFERENCES


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