Assessment of Cognitive Impairment

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**Case scenario:** 81-yr-old woman, retired registered nurse, widowed in past 12 mo, seen in follow-up; daughter reports patient increasingly forgetful over past 6 mo and asks whether memory problems indicative of depression or early dementia, or simply recall changes associated with aging

**Epidemiology of dementia:** prevalence 1% at age 60 yr and doubles every 5 yr (=5% in patients 65 to 75 yr of age); at 80 to 89 yr of age, risk for developing cognitive impairment significant enough to be classified as dementia =33% (50% in patients ≥90 yr of age); family members fail to recognize dementia in 20% of cases; physicians usually recognize dementia but do not always note diagnosis on medical chart

**Screening for cognitive impairment:** lifetime prevalence of dementia =15%, and of some cognitive impairment, ≥20%; United States Preventive Services Task Force does not recommend screening for cognitive impairment or dementia (cites lack of effective treatments); however, speaker disagrees; in addition, Affordable Care Act states screening for cognitive impairment mandatory component of annual wellness visit for older patients

**Normal aging:** some decline in processing speed and depth of recall of new information; nonverbal more affected than verbal information; spontaneous recall more difficult; no significant impact on activities of daily living and instrumental activities of daily living

**Mild cognitive impairment (MCI):** diagnostic criteria (2011)—change in cognition recognized by patient or observers; objective impairment in ≥1 cognitive domains; independence in functional activities preserved with minimal aid or assistance; MCI represents “gray zone” between normal aging and dementia; usually manifests as memory problem without deficits in other domains; 10% to 15% of patients diagnosed with MCI progress to dementia each year

**Revised diagnostic criteria for dementia (2011):** presence of cognitive or behavioral symptoms that—interfere with function at work or usual activities; represent decline from previous level of function; involve ≥2 cognitive domains

**Treatment to slow progression to dementia**

Pharmacologic intervention: overwhelming data suggest that statin therapy started at 40 to 60 yr of age may prevent dementia by decreasing buildup of amyloid protein in brain that occurs with aging; however, Food and Drug Administration (FDA) recently issued warning that, once patient cognitively impaired, statins can cause decreased memory and confusion; if statin still requested by family member or impaired patient for prevention of stroke or cardiovascular event, less lipophilic drugs (pravastatin and rosuvastatin) may be safer; donepezil (Aricept)—study of donepezil and vitamin E for treatment of MCI found patients on donepezil had slightly lower rate of progression to Alzheimer disease (AD) at 12 to 24 mo than those on placebo, but no difference seen at 36 mo; those positive for apolipoprotein E (ApoE)4 showed slight benefit at 36 mo; benefit not significant, but donepezil currently best pharmacologic option for patients with MCI

Nonpharmacologic interventions: data suggest physical activity and cognitive exercises can be helpful; randomized controlled trial (RCT)—patients with memory problems instructed to walk 50 min 3 day/wk for 6 mo showed modest improvements in cognition at 6 and 18 mo

**Screening for cognitive impairment:** rationale—treatments available; detection of problem prompts thorough work-up and treatment; Mini Mental State Examination (MMSE)—gold standard; has ceiling effect; most studied screening tool; takes ≈7 min; ask patient level of education (cut-point score 24 for high school education or less; not indicated for grade school education or less; 27 for college education); allay patient’s anxieties; speaker prefers spelling “world” forward and backward to serial 7s; positive test associated with likelihood ratio (LR) of ≈6.0 for significant impairment and diagnosis of dementia; score above cut-point associated with LR of ≈0.20; Mini-Cog—consists of 3-item recall (apple, table, penny) and clock test; sensitivity and specificity similar to MMSE; LRs not well studied; however, score of 0 to 2 associated with substantial risk for significant cognitive impairment; score of 3 to 5 indicates higher likelihood of no impairment; if patient complains of memory problems, LR for cognitive impairment low (has specificity issues; could represent depression); if family member or spouse complains of problem (especially if he or she lives with patient), LR =6.0; either scenario should trigger evaluation; adjunct cognitive tests—Montreal Cognitive Assessment more sensitive than MMSE but difficult to use; animal naming (number of 4-legged animals in 1 min; cut-point 10); cognitive tests function as screening tools only (diagnosis of dementia cannot be made unless other criteria met)

**Overlap of depression and dementia:** 2-question screen for depression adequate; new onset of depression in older adult associated with high likelihood of concurrent dementia; early dementia often coexists with depression (older patient losing neurotransmitters [eg, serotonin, norepinephrine] along with acetylcholine or may be reactive [due to recognition of cognitive impairment])

**Educational Objectives**

The goals of this program are to improve the assessment and treatment of cognitive impairment and the practice of palliative care. After hearing and assimilating this program, the clinician will be better able to:

1. Differentiate mild cognitive impairment (MCI) from normal aging and dementia.
2. Prescribe medication to slow progression to dementia in a patient diagnosed with MCI.
3. Advise patients on nonpharmacologic interventions to prevent or slow cognitive decline.

5. Counsel patients with a terminal illness and their families about prognosis and treatment options.

**Faculty Disclosure**

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Case scenario revisited: patient had negative score on 2-question depression screen, 27/30 on MMSE, and 7 on animal naming; made error on clock test; input from daughter — patient missed paying some bills, forgot some appointments, and repeats self; diagnosis — probable early dementia

Reversibility of dementia: 95% of cases irreversible (∼66% AD; next most common, vascular and/or Lewy body dementia); <5% categorized as reversible; speaker considers “reversible dementia” oxymoron; <1% of dementia fully reversible; most common reversible causes — drugs; depression

Medications that may impair cognition: most drugs, with exception of docuse (eg, Colace, Diocto, Docoluse) and acetaminophen (eg, Acephen, Actamin, Tylenol); anticholinergic side effects of commonly prescribed medications (eg, ranitidine, furosemide, digoxin, warfarin) shown to correlate with cognitive difficulties

Diagnostic work-up for dementia: basic computed tomography (CT; contrast study or magnetic resonance imaging [MRI] not required) and basic blood tests

Treatment and management of dementia: identify and treat any depression; discontinue as many drugs as possible; manage coexisting medical problems; primary goal of treatment — to enhance patient’s quality of life and maximize his or her functional performance; nonpharmacologic approaches — physical activity (shown to improve behavioral problems); caregiver support (new website [www.alzheimers.org]; counseling and support for family members); referral of patient to adult day care center; pharmacologic interventions — cholinesterase inhibitors (use questionable [data marginal for 1-2 yr]; recent RCT of patients who continue to decline while on donepezil found continued treatment with drug associated with better cognitive and functional outcomes than discontinuing donepezil or adding or switching to memantine [Namenda])

Preventing cognitive decline: case scenario revisited — after mother’s diagnosis, daughter asks what she can do to maintain own cognitive function (∼60 yr of age; claims to be in good health but relatively sedentary, has suboptimal diet, and has gained 10 lb in recent years; body mass index slightly <30); resistance training — recent RCT found weight training 2 days/wk associated with improvement in cognitive function testing over 6-mo period, compared with yoga or stretching; in recent review of RCTs of preventive strategies, only increased intellectual and physical activity found to be successful; dietary interventions may be helpful (based on observational data only)

Questions and Answers

Benefit vs potential harm of donepezil: donepezil only effective drug in arsenal for treatment of dementia; however, supporting data from RCTs only extends to ∼12 mo; data mixed on when to discontinue drug; some suggest it should be continued as long as patient capable of some function, but speaker has discontinued drug in hundreds of patients and seen no difference

Role of ApoE testing in clinical practice: presence of ApoE4 allele doubles lifetime risk for dementia from 15% to 30%; presence of ApoE2 or 3 lowers risk by ∼60%; significance of results not sufficient for test to be clinically useful (primarily for use in research at this time)

Comments on cholinesterase inhibitors: to be approved by FDA, drugs must show improvement in 2 of 3 realms (psychiatric behaviors, functional abilities, or cognition); manufacturers’ recommendations — if patient has function that can still be maintained or behavior that can be better controlled, medications should be used

Role of memantine: approved by FDA for use in patients with advanced dementia; researchers in United Kingdom concluded memantine has no role as adjunctive agent (patients may switch if it appears cholinesterase inhibitors have ceased to be effective, but will not receive reimbursement for both drugs); in US, patients given both drugs, but data limited on possible benefit; memantine has no role in treatment of early dementia

Which cholinesterase inhibitor to use: 3 drugs approved by FDA (donepezil, rivastigmine [Exelon], and galantamine [Reminyl, Razadyne]); can be used interchangeably, but donepezil available as generic

Palliative Care

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Palliative care: defined by Institute of Medicine as seeking to prevent, relieve, reduce, or soothe symptoms of disease or disorders without affecting care; not restricted to patients dying or enrolled in hospice; closely attends to emotional, spiritual, and practical ends and goals of patients and those close to them; manages needs of patients and families for whom cure not possible; focuses on burden of disease rather than illness itself; willing to address issues of life completion and closure if patient or family also willing

Hospice: indicated for patients for whom life expectancy <6 mo predicted by 2 physicians; focuses on quality of life rather than on prolongation of life; 80% of hospice care delivered at home; problem — for most serious diseases, physicians not good at prognosticating timing of death

Palliative care addresses: pain and pain management; nausea and vomiting; pruritus and dyspnea; fatigue; muscle cramps; cachexia and anorexia; psychologic symptoms; existential and spiritual issues; dispositional issues

Dispositional issues: patient may require home care (to qualify, must have skilled need); insurance limits amount and duration of home care patient can receive; to qualify for hospice, only need to have life-limiting illness and predicted life expectancy <6 mo; often, elderly patients can be placed into hospice due to frailty; can place patient in skilled nursing facility with hospice (but hospice does not cover bed charge); patient with uncontrolled symptom can receive inpatient hospice

Prognostication of outcome — cancer easiest disease to prognosticate, because typically, patient retains relatively good functional status until 30 to 45 day before beginning to succumb to disease, after which decline relatively sharp; predictors of active dying — performance status (best predictor of outcome for patients with solid tumor); nutritional status (eg, oral intake, edema, lymphocyte and leukocyte counts); dyspnea; delirium; physicians can use gestalt; however, physicians and other health care workers who do not know patient able to use gestalt with more accuracy than those who know patient well (because former group has no attachment); for common cancers, look at response rate, median duration of response rate, and median months of survival; cancers most difficult to prognosticate — breast and prostate; esophageal, pancreatic, and some biliary cancers have worst outcomes; colorectal and some small-cell lung cancers now often treated as chronic disease

Prognoses associated with specific syndromes: malignant hypercalcemia — <1 mo; malignant pericardial effusion — 3 to 6 mo; carcinomatous meningitis — <5 mo; multiple brain metastases — without irradiation, <2 mo; with irradiation, 6 to 12 mo; malignant ascites, pleural effusion, or bowel obstruction — <6 mo

Prognostication model for patients with metastatic cancers: points assigned for Karnofsky score (>60 vs <60), presence of bone or other metastases, and type of cancer (breast or prostate vs other); 0 to 4 pt — median survival 60 wk; 5 pt — median survival 26 wk; 6 to 8 pt — median survival 10 wk

Conveying information to patient and family: physicians tend to have difficulty telling prognosis to patients with
terminal disease (and tend to overestimate prognosis by ≈66%) because they wish to avoid taking away hope; however, when told, patients more likely to make good decisions, and patients’ families more likely to look back at death with limited psychologic harm and more acceptance

Deciding how much information to provide: *key question* — how much information does patient want about what might happen in future; *patient wants prognostic information* — clinician needs to determine what patient really asking (ie, before answering important questions, must determine patient’s back-story); *patient does not want information* — ask patient to help you understand why he or she does not want to know; acknowledge emotion behind patient’s position; consider whether delivering information to patient really necessary (eg, if patient asks you to talk to family member instead, and this relative amenable to receiving information, speaking to patient may be unnecessary); *patient without family refuses information* — acknowledge patient’s reluctance to hear prognosis, but express concern about need to make decisions, and explain that information could influence those decisions; *patient only wants to hear “good news”* — acknowledge patient’s ambivalence; try to determine which information patient truly needs (rather than information he or she cannot use, or that which has potential to take away hope or cause pain)

After determining patient desires information: information should be delivered in understandable form (basic reading level of most people in US between fifth and seventh grades); regardless of prognosis, information may be perceived as bad news; normal reaction to bad news emotional; clinician should acknowledge and name patient’s emotion

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1. The United States Preventive Services Task Force recommends annual screening for cognitive impairment for all patients \( \geq 65 \) yr of age.
   (A) True  
   (B) False

2. Each year, approximately ______ of patients diagnosed with mild cognitive impairment (MCI) progress to dementia.
   (A) 25% to 33%  
   (B) 20% to 25%  
   (C) 10% to 15%  
   (D) 5% to 10%

3. Which of the following medications and supplements has shown some benefit in slowing the progression of MCI to full-blown dementia?
   (A) Lovastatin  
   (B) High-dose vitamin E  
   (C) Ginkgo biloba  
   (D) Donepezil

4. Which of the following cognitive tests is the gold standard for screening for cognitive impairment?
   (A) Mini-Cog  
   (B) Montreal Cognitive Assessment  
   (C) Mini Mental State Examination  
   (D) None of the above

5. Which of the following are reversible types of dementia?
   1. Vascular dementia  
   2. Lewy body dementia  
   3. Drug-induced dementia  
   4. Dementia due to depression
   (A) 1,2,3,4  
   (B) 1,2,3  
   (C) 1,2  
   (D) 3,4

6. Which of the following imaging studies is recommended for the diagnostic work-up for dementia?
   (A) Magnetic resonance imaging  
   (B) Positron emission tomography  
   (C) Computed tomography (CT) with contrast  
   (D) Basic CT

7. Which of the following strategies has been shown to be effective in randomized clinical trials for preventing cognitive decline?
   (A) Maintaining diet high in nuts, vegetables, and omega-3 fatty acids  
   (B) Regular intellectual and physical activity  
   (C) Lowering blood pressure and cholesterol levels  
   (D) Smoking cessation

8. Palliative care is restricted to patients who are dying or enrolled in hospice.
   (A) True  
   (B) False

9. The vast majority of hospice is delivered at:
   (A) Patients’ homes  
   (B) Hospitals  
   (C) Skilled nursing facilities  
   (D) Hospice centers

10. Patients with cancer typically retain relatively good functional status until ______ before beginning to succumb to their illness.
    (A) 5 to 6 mo  
    (B) 3 to 4 mo  
    (C) 30 to 45 day  
    (D) 2 to 4 wk

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