Best Care Practices for Older Adults with ESKD

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Learning Objectives

• Describe demographic changes in the hemodialysis population

• Name two major health-related issues for older adults undergoing hemodialysis

• Discuss two evidence-based interventions to promote health in older adults undergoing hemodialysis
Hain, D. (2017) Older Adults with Chronic Kidney Disease
What is your current confidence level to care of older adults receiving dialysis?

- I am confident:
  - Not at all
  - Somewhat
  - Very confident
By 2030 all baby boomers will be over 65. This will expand the size of the older population so that 1 in every 5 residents will be retirement age. The 2030s are projected to be a transformative decade for the U.S. population.

The population is expected to grow at a slower pace, age considerably and become more racially and ethnically diverse.
“The aging of baby boomers means that within just a couple decades, older people are projected to outnumber children for the first time in U.S. history,” said Jonathan Vespa, a demographer with the U.S. Census Bureau. “By 2035, there will be 78.0 million people 65 years and older compared to 76.7 million (previously 76.4 million) under the age of 18.”
One in two adults in the US has a chronic disease and one in four adults has two or more.
86% of the nation’s $2.7 trillion in annual health care expenditures are for people with chronic and mental health conditions.¹
Who is Caring for an aging population with chronic disease like CKD
ICD-9-CM and ICD-10-CM codes for Chronic Kidney Disease (CKD) stages (introduced in 2006)

Table A. ICD-9-CM and ICD-10-CM codes for Chronic Kidney Disease (CKD) stages

<table>
<thead>
<tr>
<th>ICD-9-CM code</th>
<th>ICD-10-CM code</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>585.1</td>
<td>N18.1</td>
<td>CKD, Stage 1</td>
</tr>
<tr>
<td>585.2</td>
<td>N18.2</td>
<td>CKD, Stage 2 (mild)</td>
</tr>
<tr>
<td>585.3</td>
<td>N18.3</td>
<td>CKD, Stage 3 (moderate)</td>
</tr>
<tr>
<td>585.4</td>
<td>N18.4</td>
<td>CKD, Stage 4 (severe)</td>
</tr>
<tr>
<td>585.5</td>
<td>N18.5</td>
<td>CKD, Stage 5 (excludes 585.6: Stage 5, requiring chronic dialysis)</td>
</tr>
</tbody>
</table>

CKD Stage-unspecified  CKD Stage-unspecified  For these analyses, identified by multiple codes including 585.9, 250.4x, 403.9x & others for ICD-9-CM and A18.xx, E08.xx, E11.xx and other for ICD-10-CM.
Trends in prevalence of recognized CKD, overall and by CKD stage, among Medicare patients (aged 65+ years), 2000-2015

USRDS 2018
Trends in the adjusted prevalence of ESRD, by age group, in the U.S. population, 2000-2015

Data Source: Reference Table B.2(2) and special analyses, USRDS ESRD Database. Point prevalence on December 31 of each year. Standardized for sex and race. The standard population was the U.S. population in 2011. Abbreviations: ESRD, end-stage renal disease.
Trends in the number of ESRD prevalent cases, by modality, in the U.S. population, 1980-2015

Data Source: Reference Table D.1. Abbreviation: ESRD, end-stage renal disease.
Geriatric Syndromes

- Clinical condition that are common among older adults that fit into discrete disease categories

- “are clusters of age-related changes, medical conditions, symptoms, and medication effects” (Sleeper, 2009, p. 447) that are associated with functional decline and poor health outcomes (Lee, Cigolle, & Blaum, 2009; Sleeper, 2009).

  - Poor health outcomes
    - Mortality
    - Morbidity
    - Health care utilization
Focus of this lecture

- Frailty
- Polypharmacy
- Three D’s
  - Delirium
  - Dementia
  - Depression
- Falls
- Specific to older adults undergoing HD
  - Access
  - Treatment considerations
Focus of this lecture

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Definition of Frailty

• “a clinically recognizable state of older adults with increased vulnerability, resulting from age-associated declines in physiologic reserve and function across multiple organ systems, such that the ability to cope with everyday or acute stressors are compromised” (Chen, Mao, & Leng, 2014, p. 434).

• Characterized by decrease in physiological reserve, decline in physical and cognitive function
  – Increase risk for falls, hospitalization, death
Traditional Definition of Frailty: Fried Model

- Frail: a person meets ≥ 3 of the criteria
- Prefrail: a person meets 1 or 2 of the criteria

BOX 5-3 Criteria for Frailty as a Clinical Syndrome as Proposed by Fried et al

Frailty Criteria:
- Unintentional weight loss of 10 lb or more in the past year
- Self-reported exhaustion (person states they are exhausted 3 or more days per week)
- Muscle weakness (grip strength in lowest 20%: <23 lb for women; <32 lb for men)
- Walking speed in the lowest 20% (<0.8 m/sec)
- Low level of activity (kcal/week—lowest 20%: 270 kcal/wk for women; 383 kcal/wk for men equivalent to sitting quietly and/or lying down for the vast majority of the day)

A person is considered frail if he or she meets 3 of these 5 frailty criteria.
A person is considered prefrail if he or she meets one or two of these frailty criteria.

Fried 2001
ESKD and Frailty

• Poor performance on physical function performance measures has been linked to frailty and worsening of kidney function (Shlipak et al., 2004; Reese et al., 2013; Walker et al., 2013).

• Role of nephrology nurses
  – Assess physical and cognitive function
  – Assess for pain
  – Nutritional evaluation
    • Unintentional weight loss
Short Physical Performance Battery (SPPB) Tool to assess gait speed, chair raises and balance

1. Balance tests
   - Side-by-side Stand
     - For 10 sec
     - < 10 sec (0 pt)
     - 10 s (+1 pt)
   - Semi-Tandem Stand
     - For 10 sec
     - < 10 sec (0 pt)
     - 10 s (+1 pt)
   - Tandem stand
     - For 10 sec
     - 10 s (+2 pt)
     - 9 s (+1 pt)
     - 3 s (+0 pt)

2. Gait Speed Test
   - Measures the time required to walk 4 meters at a normal place (use best of 2 times)
   - < 4.82 s (4 pt)
   - 4.82-6.20 s (3 pt)
   - 6.21-8.70 s (2 pt)
   - >8.7 s (1 pt)
   - Unable (0 pt)

3. Chair Stand Test
   - Pre-test
     - Participants fold their arms across their chest and try to stand up once from a chair
     - Unible
     - Stop (0 pt)
   - 5 repeats
     - Measures the time required to perform five raises from a chair to an upright position as fast as possible without the use of the arms
     - < 11.19 s (4 pt)
     - 11.20-13.69 s (3 pt)
     - 13.70-16.69 s (2 pt)
     - >16.7 s (1 pt)
     - >60 s or unable (0 pt)

Points:
- Test 1 ___ pt
- Test 2 ___ pt
- Test 3 ___ pt
- Total points: ________ pt
Interventions

• Pain management
• Collaborate with interprofessional team
  – Dietitian to assess nutritional status
    • Nutritional supplements
    • IDPN
  – Social worker
• Medication review
  – Polypharmacy
• Physical therapy
Focus of this lecture

- Frailty
- **Polypharmacy**
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Polypharmacy and other geriatric syndromes

- Adverse events from medications in adults with advanced age and those with CKD/ESKD receiving dialysis
  - Falls
  - Physical functional decline
  - Cognitive Impairment
  - Urinary incontinence
Polypharmacy

• Older adults drug use disproportionately higher compared to younger population
  – People 65 and older constitute 12% of the population and consume 31% of prescribed
    • One or more chronic disease
    • Excessive prescribing

The dialysis team has an essential role on monitoring medications and paying attention to polypharmacy and associated risks
Polypharmacy

• Has been defined as the use of five or more medications at the same time or the use of multiple medications for the same health condition.

• Definition may not be appropriate for older adults with multiple chronic conditions
  – CKD
  – CVD

• Potentially inappropriate concurrent use of multiple medications (Bushardt et al., 2008)
Consider Ability to Manage Medications
AGS Beers Criteria
For Potentially Inappropriate Medication Use in Older Adults

From the American Geriatrics Society

This clinical tool, based on The AGS 2012 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults (AGS 2012 Beers Criteria), has been developed to assist healthcare providers in improving medication safety in older adults. Our purpose is to inform clinical decision-making concerning the prescribing of medications for older adults in order to improve safety and quality of care.

Originally conceived in 1991 by the late Mark Beers, MD, a geriatrician, the Beers Criteria catalyzed medications that cause adverse drug events in older adults due to their pharmacokinetic properties and the physiologic changes of aging. In 2011, the AGS undertook an update of the criteria, assembling a team of experts and funding the development of the AGS 2012 Beers Criteria using an enhanced, evidence-based methodology. Each criterion is rated (quality of evidence and strength of evidence) using the American College of Physicians’ Guideline Grading System, which is based on the GRADE scheme developed by Guyatt et al.

The full document together with accompanying resources can be viewed online at www.american geriatrics.org.

INTENDED USE

The goal of this clinical tool is to improve care of older adults by reducing their exposure to Potentially Inappropriate Medications (PIMs).

- This should be viewed as a guide for identifying medications for which the risks of use in older adults outweigh the benefits.
- These criteria are meant to be applied in a positive manner.
- This list is not meant to supersede clinical judgment or an individual patient’s values and needs. Prescribing and managing disease conditions should be individualized and involve shared decision-making.
- The criterion also underscores the importance of using a team approach to prescribing and the use of nonpharmacological approaches and of having economic and organizational incentives for this type of model.
- Implicit criteria such as the STOPPSTART criteria and Medication Appropriateness Index should be used in a complementary manner with the 2012 AGS Beers Criteria to guide clinicians in making decisions about medication use in older adults.

The criteria are not applicable in all circumstances (eg, patient's receiving palliative and hospice care). If a clinician is not able to find an alternative and chooses to continue to use a drug on this list in an individual patient, designation of the medication as potentially inappropriate can serve as a reminder for close monitoring so that the potential for an adverse drug effect can be incorporated into the medical record and prevented or detected early.

<table>
<thead>
<tr>
<th>TABLE 1: 2012 AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Therapeutic Category/Drug(s)</strong></td>
</tr>
<tr>
<td><strong>Anticholinergics (includes TCAs)</strong></td>
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<td>Antipsychotics</td>
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This content is provided for educational purposes and is not intended as medical advice. Always consult a healthcare provider about your specific diagnosis and treatment options.
STOPP & START

**STOPP**
- Screening Tool of Older Person's Prescriptions
- Addresses potentially inappropriate medications
- 65 rules or criteria
- Each criteria given concise explanation
- Most criteria related to drug-drug or drug-disease interactions
- Sets maximum doses for digoxin (125 mcg) and aspirin (150 mg)
- Other criteria address: indication, place in therapy, duration of use,
- Defines renal failure as GFR 20-50 mL/min

**START**
- Screening Tool to Alert doctors to the Right Treatment
- Addresses potential errors of omission or underutilization
- 22 rules or criteria
- Lists medication therapy that should be utilized in patients with specific medical conditions

Gallagher et al. *Int J Clin Pharm Ther* 2008;45:72-83
Rynn et al. *Ann Pharmacother* 2009 43M157e1-3
### Step 1: Compile comprehensive medication history
- Obtain an accurate list of all regular, when required and intermittent medications (prescription and non-prescription)
- Document indications for each medication
- Identify possible ADRs and non-adherence

### Step 2: Identify potentially inappropriate medications
- Assess the potential harms and benefits in the individual (e.g., causing ADRs, no indication)
- Use lists of medications that are high risk in the elderly (e.g., Beers list, STOPP criteria)
- Take into account life expectancy and the patient’s treatment goals when reviewing preventive medications

### Step 3: Determine whether medication can be ceased, and prioritise
- Appropriate timing of withdrawal (otherwise medically stable)
- Gain patient consent (highlight potential benefits of medication cessation, confirm that it is a trial and medication can be restarted if necessary)
- Stop one medication at a time

### Step 4: Plan and initiate withdrawal
- Tapering is recommended to reduce adverse drug withdrawal reactions, increase patient comfort and identify lowest effective dose
- Ensure the patient (and carer) is comfortable with the plan and is aware of what steps to take if symptoms return

### Step 5: Monitor, support and document
- Monitor the patient for adverse drug withdrawal reactions and return of symptoms, short and long term
- Ensure that the patient has a contact number for questions and concerns
- Implement non-pharmacological therapies
- Document the process and outcome and communicate to all relevant parties
Focus of this lecture

- Frailty
- Polypharmacy
- **Three D’s**
  - Delirium
  - Dementia
  - Depression
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The Three D’s

- Delirium
- Dementia
- Depression
WHO IS AT RISK AT ADMISSION?
Chances are you encounter older people who are at risk for delirium in your role.

Some of the risk factors for delirium are characteristics the person already has when they are admitted to your care. These characteristics make the person more vulnerable to delirium, so it will take less to 'tip them over' into a delirium. Extra care and specific delirium prevention strategies should be employed for these at-risk patients.

PREVENTABLE RISKS
Anything that can be done to reduce a cause or risk factor for delirium could help prevent delirium.

The focus for us to reduce delirium is to target the triggers that can occur during the episode of care. There is now considerable consensus about these preventable risks which has helped guide effective prevention protocols. We use a simple mnemonic to summarise these risk factors: PINCHES ME Kindly

DID YOU KNOW?
Up to 50% of delirium affecting older people in hospital develops after admission (incident delirium). These are the cases that we can often prevent by better care. It has been suggested that incident delirium is an indicator of how well we are looking after older people.

THINK DELIRIUM PREVENTION & MANAGEMENT

One third to one half of delirium that occurs while older people are in our care can be prevented by addressing these risk factors.
Prevalence

– Older adult at hospital admission is 13-60%
– Develops during hospital stay 6-56%
– 15-74% postoperative patients
– 60-80% medical intensive care patients
– Up to 50% delirium exists at discharge
Delirium

– Associated hospital mortality rates are 25% to 33%
– Delirium at discharge associated with a 2.6 fold increased risk of death or nursing home placement
– Associated with rehospitalization, prolonged institutionalization and death
Causes of Delirium

I: Infections........ UTI's, pneumonia, encephalitis, etc.
W: Withdrawal................. alcohol, benzodiazepines, sedative-hypnotics
A: Acute causes............... electrolyte disturbance, dehydration, acidosis / alkalosis, hepatic/renal metabolic failure
T: Toxins, drugs................. opiates, salicylates, indomethacin, dilantin
C: CNS pathology .............. stroke, TIA, tumors, seizures, hemorrhage, infection
H: Hypoxia........................ anemia, pulmonary/cardiac failure, hypotension

D: Deficiencies.................. Thiamine (with alcohol abuse), B12
E: Endocrine...................... thyroid, hypo/hyperglycemia, adrenal dysfunction, hyperparathyroid
A: Acute vascular shock,....... hypertensive encephalopathy
T: Trauma......................... head injury, post-operative, hypo/hyperthermia
H: Heavy Metals................. lead, mercury, manganese poisoning

WATCH DEATH
### Table 1 – Common signs and symptoms of delirium

<table>
<thead>
<tr>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disturbed attention and awareness</td>
</tr>
<tr>
<td>Reduced level of alertness or arousal</td>
</tr>
<tr>
<td>Acute onset and fluctuating course</td>
</tr>
<tr>
<td>Fragmented sleep</td>
</tr>
<tr>
<td>Disordered thought process</td>
</tr>
<tr>
<td>Disorientation to time and place</td>
</tr>
<tr>
<td>Executive dysfunction</td>
</tr>
<tr>
<td>Memory impairment</td>
</tr>
<tr>
<td>Visuospatial deficits</td>
</tr>
<tr>
<td>Abnormalities of language</td>
</tr>
<tr>
<td>Psychomotor agitation or retardation</td>
</tr>
<tr>
<td>Reality distortion, including illusions, hallucinations, and delusions</td>
</tr>
<tr>
<td>Labile affect</td>
</tr>
<tr>
<td>Asterixis</td>
</tr>
<tr>
<td>Frontal release signs</td>
</tr>
</tbody>
</table>

Important to recognize acute confusion is not normal, even when person has dementia.
Categories of delirium

- **Hyperactive**
  - May be noisy, climbing out of bed, pull out lines
  - Delusional may attack those providing care because of delusions of persecution
  - Hallucinations may be terrified and screaming

- **Hypoactive**
  - Quiet, may not draw any clinical attention
  - May be listless and uncomplaining and do whatever they are told
  - However they may have no sense of what is going on around them or why they are there

- **Mixed**
# Best Practices in Geriatric Medicine: Recommendations from the Choosing Wisely Campaign

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Sponsoring Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation, or delirium.</td>
<td>American Geriatrics Society</td>
</tr>
<tr>
<td>Avoid physical restraints to manage behavioral symptoms of hospitalized older adults with delirium.</td>
<td>American Geriatrics Society</td>
</tr>
<tr>
<td>Do not prescribe antipsychotic medications to patients for any indication without appropriate initial evaluation and appropriate ongoing monitoring.</td>
<td>American Psychiatric Association</td>
</tr>
</tbody>
</table>

Source: For supporting citations, see http://www.aafp.org/afp/cw-table.pdf. For more information on the Choosing Wisely Campaign, see http://www.aafp.org/afp/choosingwisely. To search Choosing Wisely recommendations relevant to primary care, see http://www.aafp.org/afp/recommendations/search.htm.
We can see in AKI and disequilibrium Syndrome; infection, infarct

In older adults undergoing HD
Do you think delirium occurs?

### Table. The Most Common Components of Successful Delirium Prevention Programs

- Anesthesia protocols
- Assessment of bowel/bladder functions
- Early mobilization
- Extra nutrition
- Geriatric consultation
- Hydration
- Medication review
- Pain management
- Prevention and treatment of medical complications
- Sleep enhancement
- Staff education
- Supplemental oxygen
- Therapeutic cognitive activities/orientation
- Vision and hearing protocols
What about our patients who have surgery, should assess for delirium and intervene when they return to the Center?

Table 3. American Geriatrics Society Clinical Practice Guidelines for the Prevention and Treatment of Postoperative Delirium

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strong: Benefits Clearly Outweigh Risks or Vice Versa</strong></td>
<td></td>
</tr>
<tr>
<td>Multicomponent nonpharmacologic interventions (for prevention)</td>
<td>Delivered by interdisciplinary team for at-risk older adults. Includes mobility and walking, avoiding physical restraints, orienting to surroundings, sleep hygiene, adequate oxygen, fluids, and nutrition.</td>
</tr>
<tr>
<td>Educational programs</td>
<td>Ongoing, provided for health care professionals</td>
</tr>
<tr>
<td>Medical evaluation</td>
<td>Identify and manage underlying organic contributors to delirium</td>
</tr>
<tr>
<td>Pain management</td>
<td>Should be optimized, preferably with nonopioid medications</td>
</tr>
<tr>
<td>Medications to avoid</td>
<td>Any medications associated with precipitating delirium (e.g., high-dose opioids, benzodiazepines, antihistamines, dihydropyridines). Cholinesterase inhibitors should not be newly prescribed to prevent or treat postoperative delirium. Benzodiazepines should not be used as first-line treatment of delirium-associated agitation. Benzodiazepines and antipsychotics should be avoided for treatment of hypoactive delirium.</td>
</tr>
</tbody>
</table>

| **Weak: Evidence in Favor of These Interventions, But Level of Evidence or Potential Risks Limit Strength of Recommendation** | |
| Multicomponent nonpharmacologic interventions (for treatment) | Delivered by interdisciplinary team when older adults are diagnosed with postoperative delirium to improve clinical outcomes |
| Pain management | Injection of regional anesthetic at the time of surgery and postoperatively to improve pain control with the goal of preventing delirium |
| Antipsychotics | The use of antipsychotics (haloperidol, risperidone, olanzapine, quetiapine, or ziprasidone) at the lowest effective dose for shortest possible duration may be considered to treat delirious patients who are severely agitated, distressed, or threatening substantial harm to self, others, or both |

---

The Three D’s

- Delirium
- **Dementia**
- Depression
Cognitive Impairment

Prevalence 30% to 60%

Global cognitive function varies over dialysis session

CKD independent risk for cognitive impairment
Risks of Cognitive Impairment

- Hypertension
- Diabetes
- Stroke
- Myocardial infarction
- CKD

Zammit et al, 2016
Vascular Dementia

- Cerebrum
- Cerebellum
- The brainstem
- Midbrain
- Pons
- Medulla Oblongata
- Spinal cord

Healthy Blood Vessels
Blood Vessels with Multiple Infarcts
# Vascular Risk factors in adults with CKD

<table>
<thead>
<tr>
<th>Non-traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Inflammation</td>
</tr>
<tr>
<td>• Malnutrition</td>
</tr>
<tr>
<td>• Hyperhomocysteinemia</td>
</tr>
<tr>
<td>• Anemia</td>
</tr>
<tr>
<td>• Albuminuria (indicator of kidney disease also serves as marker systemic vascular health)</td>
</tr>
<tr>
<td>• Hypercoaguable states</td>
</tr>
<tr>
<td>• Oxidative stress</td>
</tr>
<tr>
<td>• Sleep disturbance</td>
</tr>
<tr>
<td>• Secondary hyperparathyroidism</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Diabetes</td>
</tr>
<tr>
<td>• Hypertension</td>
</tr>
<tr>
<td>• Dyslipidemia</td>
</tr>
<tr>
<td>• Smoking</td>
</tr>
<tr>
<td>• Cardiovascular disease</td>
</tr>
</tbody>
</table>
Factors Contribute to Cognitive Impairment in Older Adults with Diabetes

<table>
<thead>
<tr>
<th>Metabolic</th>
<th>Vascular</th>
<th>Endocrine</th>
<th>CNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic hyperglycemia</td>
<td>Microvascular</td>
<td>Decreased insulin sensitivity</td>
<td>Genetic predisposition</td>
</tr>
<tr>
<td>Acute hypoglycemia</td>
<td>Macrovascular</td>
<td></td>
<td>Amyloid deposition</td>
</tr>
<tr>
<td>Recurrent hypoglycemia</td>
<td>Endothelial dysfunction</td>
<td>Hyperinsulinemia</td>
<td>Oxidative stress</td>
</tr>
<tr>
<td></td>
<td>Inflammation</td>
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<td>Depression</td>
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<tr>
<td></td>
<td>Changes in blood-brain barrier</td>
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<td>Dyslipidemia</td>
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Assessing for cognitive impairment in ESKD
Comprehensive Geriatric Assessment

- Physical, psychological, and socioeconomic factors interact in complex ways to influence health
Assessing for Cognitive Impairment: History and Physical

- Recent hospitalizations, new medications, recent illness Laboratory studies
  - CMP, CBC, thyroid, Vitamin B$_{12}$, urine, serology for syphilis, HIV
- Imaging
Neuroimaging

Consider when:

• Onset occurs at age <65 years
• Neurologic signs present
• Questionable normal-pressure hydrocephalus
• Recent fall or other head trauma

Imaging studies:

• Noncontrast computed topography head scan
• Magnetic resonance imaging
• Positron emission tomography
Components of the diagnostic evaluation for dementia (Galvin & Sadowsky, 2012):

- Observation for common warning signs
- Medical and symptom history (from patient and informant)
- Cognitive screening test
- Standard medical tests to rule out reversible causes of dementia or coexisting disorders

Additional tests as warranted
Subjective complaints do they mean anything?

Should I screen or not? He seems to be ok, I want to do the best for my patient.
Value of Early Detection and Diagnosis

• Diagnosis of dementia is life changing (McCarten & Borson, 2014).

• Early detection and diagnosis affords many benefits to PLwD and their care partners (Cordell et al., 2013; Johnson et al., 2013; McCarten & Borson, 2014):
  o Involves PLwD in decision-making
  o Can help preserve functioning
  o Allows optimization of other medical conditions
  o Allows for long-term care planning
  o Allows for development of interprofessional care team (Johnson et al., 2013)

• Need to balance benefits of routine screening of asymptomatic patients and early detection against costs of routine screening and early diagnosis (Boustani, 2013; McCarten, 2013)

• Currently, there is insufficient evidence as to the benefits or harms associated with routine screening for cognitive impairment in older adults (Moyer & USPSTF 2014).

• Medicare covers a free Annual Wellness Visit for every beneficiary.
<table>
<thead>
<tr>
<th>Normal Age-Related Memory Loss</th>
<th>Memory Loss in MCI</th>
<th>Memory Loss in AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes misplaces keys, eyeglasses, or other items</td>
<td>Frequently misplaces items</td>
<td>Forgets what an item is used for or puts it in an inappropriate place</td>
</tr>
<tr>
<td>Momentarily forgets an acquaintance's name</td>
<td>Frequently forgets people's names and is slow to recall them</td>
<td>May not remember knowing a person</td>
</tr>
<tr>
<td>Occasionally has to search for a word</td>
<td>Has increasing difficulty finding desired words</td>
<td>Begins to lose language skills and may withdraw from social interaction</td>
</tr>
<tr>
<td>Occasionally forgets to run an errand</td>
<td>Begins to forget important events and appointments</td>
<td>Loses the sense of time; does not know what day it is</td>
</tr>
<tr>
<td>May forget an event from the distant past</td>
<td>May forget recent events or newly learned information</td>
<td>Has seriously impaired recent memory and difficulty learning and remembering new information</td>
</tr>
<tr>
<td>When driving, may momentarily forget where to turn, but quickly orients self</td>
<td>Becomes temporarily lost more often; may have trouble understanding and following a map</td>
<td>Becomes easily disoriented or lost in familiar places, sometimes for hours</td>
</tr>
<tr>
<td>Jokes about memory loss</td>
<td>Worries about memory loss; family and friends notice lapses</td>
<td>May have little or no awareness of cognitive problems</td>
</tr>
</tbody>
</table>

Telling the Difference Between Normal Forgetfulness and Memory Loss
### Screening Instruments for Evaluating Cognitive Function

<table>
<thead>
<tr>
<th>Name</th>
<th>Items/Scoring</th>
<th>Domains assessed</th>
<th>Web link (accessed September, 2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini-Cog</td>
<td>2 items Score = 5</td>
<td>Visuospatial, executive function, recall</td>
<td><a href="http://geriatrics.uthscsa.edu/tools/MINICog.pdf">http://geriatrics.uthscsa.edu/tools/MINICog.pdf</a></td>
</tr>
<tr>
<td>SLUMS</td>
<td>11 items Score = 30</td>
<td>Orientation, recall, calculation, naming, attention, executive function</td>
<td><a href="http://medschool.slu.edu/agingsuccessfully/pdfsurveys/slumsexam_05.pdf">http://medschool.slu.edu/agingsuccessfully/pdfsurveys/slumsexam_05.pdf</a></td>
</tr>
<tr>
<td>MoCA</td>
<td>12 items Score = 30</td>
<td>Orientation, recall, attention, naming, repetition, verbal fluency, abstraction, executive function, visuospatial</td>
<td><a href="http://www.mocatest.org">www.mocatest.org</a></td>
</tr>
<tr>
<td>Folstein MMSE</td>
<td>19 items Score = 30</td>
<td>Orientation, registration, attention, recall, naming, repetition, 3-step command, language, visuospatial</td>
<td>For purchase: <a href="http://www.minimental.com">www.minimental.com</a></td>
</tr>
</tbody>
</table>
The Mini-Cog Assessment Instrument for Dementia

The Mini-Cog assessment instrument combines an uncued 3-item recall test with a clock-drawing test (CDT). The Mini-Cog can be administered in about 3 minutes, requires no special equipment, and is relatively uninfluenced by level of education or language variations.

Administration

The test is administered as follows:

1. Instruct the patient to listen carefully to and remember 3 unrelated words and then to repeat the words.

2. Instruct the patient to draw the clock, or on a sheet with the clock circle already drawn on the page. After the patient puts the numbers on the clock face, ask him or her to draw the hands of the clock to read a specific time, such as 11:20. These instructions can be repeated, but no additional instructions should be given. Give the patient as much time as needed to complete the task. The CDT serves as the recall distractor.

3. Ask the patient to repeat the 3 previously presented words.

Scoring

Give 1 point for each recalled word after the CDT distractor. Score 1–3.

A score of 0 indicates positive screen for dementia.

A score of 1 or 2 with an abnormal CDT indicates positive screen for dementia.

A score of 1 or 2 with a normal CDT indicates negative screen for dementia.

A score of 3 indicates negative screen for dementia.

Clock Drawing
Early in AD patients may experience challenge in thinking, planning and memory. Pathological changes continue to areas of the cerebral cortex that control language, reasoning, and conscious thought. Affected regions continue to shrink, ventricles enlarge, and signs and symptoms of disease more pronounced.
Symptoms of vascular dementia

- May develop suddenly then decline in steps.
- Memory loss may not be the first symptom.
- Concentration problems.
- Changes in mood.
- Physical weakness.
- Difficulty communicating or conversing.
AD brain changes start decades before symptoms show.

Amnestic MCI: memory problems; other cognitive functions OK; brain compensates for changes.

Cognitive decline accelerates after AD diagnosis.

Normal age-related memory loss.

Total loss of independent function.

Life Course:

- Birth
- 40
- 60
- 80
- Death

Legend:

- Healthy Aging
- Amnestic MCI
- Clinically Diagnosed AD
Vascular Dementia

Typical Progression of Multi-Infarct Dementia

Symptoms stay the same for awhile...

...then suddenly get worse.
Treatment
Cognitive Issues During Dialysis
The Three D’s

- Delirium
- Dementia
- Depression
Prevalence of Depression

• Highly prevalence in CKD and ESKD
  – CKD 3-4 times higher than general population & 2-3 times in adults with other chronic conditions (Shirazian et al., 2016)
• Systematic review (55,982 participants) indicated there is variability in prevalence based on stage and tools used to assess (Palmer et al., 2013)
• Self-report or clinician administered vs. clinical interview
  – Stage 5D, 39.3% vs. 22.8%
  – CKD stages 1-5, 26.5% vs. 21.4%
  – Transplant recipients 26.5% vs. 25.7%

• Associated poor health outcomes
• Older adults have high risk for depression
Depression common in older adults

Symptoms:

- Difficulty concentrating
- Loss of interest, apathy
- Psychomotor retardation
- Sleep disturbance
- Appetite changes
Most Commonly Used Screening Tools

- Valid and reliable instruments
  - Patient Health Questionnaire (PHQ-9)
  - Beck Depression Inventory (BDI)
  - Center for Epidemiologic Studies Depression Scale (CESD)
  - Quick Inventory of Depressive Symptomology Self-Report (QID-SR)
### Patient Health Questionnaire - 9 (PHQ-9)

**Questions:**

Over the last 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little interest or pleasure in doing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Feeling down, depressed, or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Trouble falling or staying asleep, or sleeping too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Feeling tired or having little energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Poor appetite or overeating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Thoughts that you would be better off dead or of hurting yourself in some way</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Score:**

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

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Developing by Drs. Robert L. Spitzer, Janet B. Williams, Karl Kroenke and colleagues, with an additional grant from Pfizer Inc.  
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**Patient's name:**

**Date:**
Specific Screening Issues for ESKD

• Hedayati et al (2009) the score for diagnosing higher than general population which he attributed to overlapping somatic symptoms of depression and symptoms related to ESRD
  – Fatigue
  – Difficulty concentrating
  – Difficulty sleeping
  – Poor appetite
Treatment

• Person-centered approach
• Non-pharmacological approaches
• Pharmacological approaches
Focus of this lecture

- Frailty
- Polypharmacy
- Three D’s
  - Delirium
  - Dementia
  - Depression
- Falls
- Specific to older adults undergoing HD
  - Access
  - Treatment considerations
OLDER ADULT FALLS
Startling Statistics

1 second
An older adult falls every second of every day.

1 in 4
One in four older adults reported a fall in 2014.

#1 cause
Falls are the #1 cause of hip fractures.

STEADI Stopping Elderly Accidents, Deaths & Injuries
www.cdc.gov/steadi
• Falls (unplanned descent to the floor or lower level with or without injury) and fall-related injuries commonly occur in older adults (65 years and older) and can have devastating outcomes such as hospitalization, premature institutionalization, and death (CDC, 2016).

• Older adults with ESKD have a higher risk of falls.
Risk Factors for Falls

Dialysis
- Environment
- Hypotension/orthostatic
- Medications
- Cardiac arrhythmia
- Hypovolemia
Fall Prevention Program

OLDER ADULT FALLS
A Preventable Problem

1. SCREEN
   Screen for fall risk using these 3 questions:
   - Have you fallen in the past year?
   - Do you feel unsteady when standing or walking?
   - Do you worry about falling?

2. REVIEW
   Review and manage medications linked to falls.

3. RECOMMEND
   Recommend vitamin D for improved bone, muscle, and nerve health.

CDC, healthcare providers, and older adults and their caretakers can work together to prevent falls.

www.cdc.gov/steadi
Develop Fall Prevention Program

• Plan for screening for falls
• Person-centered interventions
• Quality improvement
  – Process
  – Outcomes
CDC's STEADI initiative aimed at preventing falls among older adults — SAVES LIVES AND HEALTH CARE COSTS.

The STEADI tools & materials are based on established clinical guidelines to help health care providers:

- Screen patients for their fall risk level (low, moderate, and high)
- Identify modifiable risk factors; and
- Offer effective interventions.

If 5,000 health care providers adopt STEADI, over a 5-year period as many as:

- 6.3 million more patients could be screened,
- 1.4 million more falls could be prevented; and
- $3.6 billion more in direct medical costs could be saved.

Case studies & tips for talking with patients.

STEADI Materials include:

- Instructional videos & online trainings.
- Screening tools.
- Educational materials for patients and their friends & family.

Learn more and download CDC's STEADI tools and information at: www.cdc.gov/Injury/STEADI
Focus of this lecture

- Frailty
- Polypharmacy
- Three D’s
  - Delirium
  - Dementia
  - Depression
- Falls
- **Specific to older adults undergoing HD**
  - Access
  - Treatment considerations
Special Issues Related to Undergoing HD

Is this the best for older adults?

"Fistula First, Catheter Last"

My Access, My Life

www.hd-cath.com  www.telekidney.cc
Issues to Consider

• Fistula take time to mature
• Older adults with more limited life expectancy may not survive long enough to achieve the benefits of AVF (Tamura et al., 2012; Moist et al., 2012)
  Increased risk of fistula failure
• Survival with graft vs fistula (DeSilva, 2013)
  Mortality rate similar for graft like fistula, especially 80 years and older
So What is Best for Me?

Things to consider when choosing Best access:

• Benefit vs. harm depends on characteristics, circumstances, prognosis, preferences, and goals of the individual patient (DeSilva, et al, 2012; O’Hare et al., 2010; O’Hare, 2013)

• Because of heterogeneity of life expectancy, health status, health priorities, and illness experiences no none approach to vascular access is expected to meet the needs of all older adults (O’Hare, 2013)
Focus of this lecture

- Frailty
- Polypharmacy
- Three D’s
  - Delirium
  - Dementia
  - Depression
- Falls
- Specific to older adults undergoing HD
  - Access
  - Treatment considerations
Is adequacy the best way to measure effectiveness of dialysis?

- Older adults have a high risk for poor health outcomes so is more dialysis better?
  - Mortality (37 deaths/100 patient years in first six months)
- What evidence do we have to support the best treatment?
Approaches Used to Resolve Health Challenge of Undergoing HD

Significance
- Increasing incidence and prevalence of older adults with ESKD undergoing in-center HD
- Requires engagement in self-management of complex medical regimen
- Demographic changes have sparked dialogue about quality of life
- Health-related quality of life (HRQL) is a quality indicator
- KDQOL-36 measures HRQL
- Current measures may not discriminate between younger and older adults
- Not capture the uniqueness of older adult population
- Initiating HD is an unsettling health challenge
  (Hain et al. 2008)
- Need to gain insight into dimensions of health challenge to discover meaningful clinical information to support quality of life

Purpose
To identify low points and high points associated with health challenge of undergoing HD and to identify approaches used to resolve the complex health challenge of undergoing HD

Methods
- Adults 60 years and older, undergoing in-center hemodialysis for one year or more were included in this qualitative study
- Story Inquiry Method, an approach guided by story theory (Smith & Liehr, 2014) was used to inform story gathering
- Story path approach incorporated the past and future into a focus on the “expanded present moment”.
- Data was analyzed using inductive and deductive process that occurred in four stages
  - Stage one: deductive process of organizing data for all participant to identify approaches for resolving the health challenge
  - Stage two: Inductive approach, grouped like approaches and three themes were identified within each group
  - Stage three: Deductive process; Participants transcripts considered individually within three groups to determine high and low points
  - Stage four: high and low points synthesized as themes

Findings
- Seventeen participants ranging from 61 to 89 years with the majority being European white (n =12)
- Three synthesized themes of low to high points using approaches or resolving the health challenges were:
  - Tied up by limitations to discovering everyday balance through connecting with one’s destiny (n=8)
  - Lonely abandonment to hopeful connecting through persistent expectations for normalcy (n =6)
  - Profound personal upheaval to grateful self-control through steely strength (n =3)

Discussion
- Emerging evidence supports the importance of knowing the unique differences between younger and older adults undergoing HD.
  - Paying attention to psychosocial factors is essential
  - Social relationships play a key role
  - Determining what matters most can help older adults achieve quality living
- Research is needed to gain insight into meaning of quality living vs. quality of life
- Capturing quality living in clinical outcome measures
What do you think is the best access for older adults?
Best KRT?
Do you think we need to treat older adults differently than younger adults?
Thank You!

Questions?

Comments?

Suggestions?