# Practical Dementia

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# Learning Objectives

By the end of this lecture, you will be able to

1-Objectively evaluate complaints of memory loss and diagnose dementia

2-Discuss and choose medications, if appropriate

3-Help patients and families plan for future challenges in dementia

# Outline

- Case 1
  - Prevention
- Case 2
  - Diagnosis
- Case 3
  - Treatment-Mild to Moderate
- Case 4
  - Treatment and Planning-Severe
- Resources
  - QR code

# Case 1

- 65 year old male on your schedule for "Personal"
  - Untreated Stage 2 Hypertension 150/92. Otherwise, healthy nonsmoker.

  - Up to date on recommended preventative health

  - <mark>Very worried about his risk to develop dementia and wants to discuss options for prevention</mark>

  - His 85 year old father is struggling with progressive dementia

  - No current self or family reported cognitive issues

# Dementia prevention, intervention, and care: 2024 report of the *Lancet* standing Commission

Gill Livingston, Jonathan Huntley, Kathy Y Liu, Sergi G Costafreda, Geir Selbæk, Suvarna Alladi, David Ames, Sube Banerjee, Alistair Burns, Carol Brayne, Nick C Fox, Cleusa P Ferri, Laura N Gitlin, Robert Howard, Helen C Kales, Mika Kivimäki, Eric B Larson, Noeline Nakasujja, Kenneth Rockwood, Quincy Samus, Kokoro Shirai, Archana Singh-Manoux, Lon S Schneider, Sebastian Walsh, Yao Yao, Andrew Sommerlad*, Naaheed Mukadam*

## Executive summary

The 2024 update of the *Lancet* Commission on dementia provides new hopeful evidence about dementia majority populations within them, so dementia is more likely to develop at an earlier age.

Evidence for specific risk factors suggests that all

# Case 1-Prevention

1. Less education
2. Hypertension
3. Hearing impairment
4. Smoking
5. Obesity
6. Depression
7. Physical Inactivity

8. Diabetes
9. Low Social Contact
10. Excessive alcohol consumption
11. Traumatic Brain Injury
12. Air Pollution
13. Vision Loss
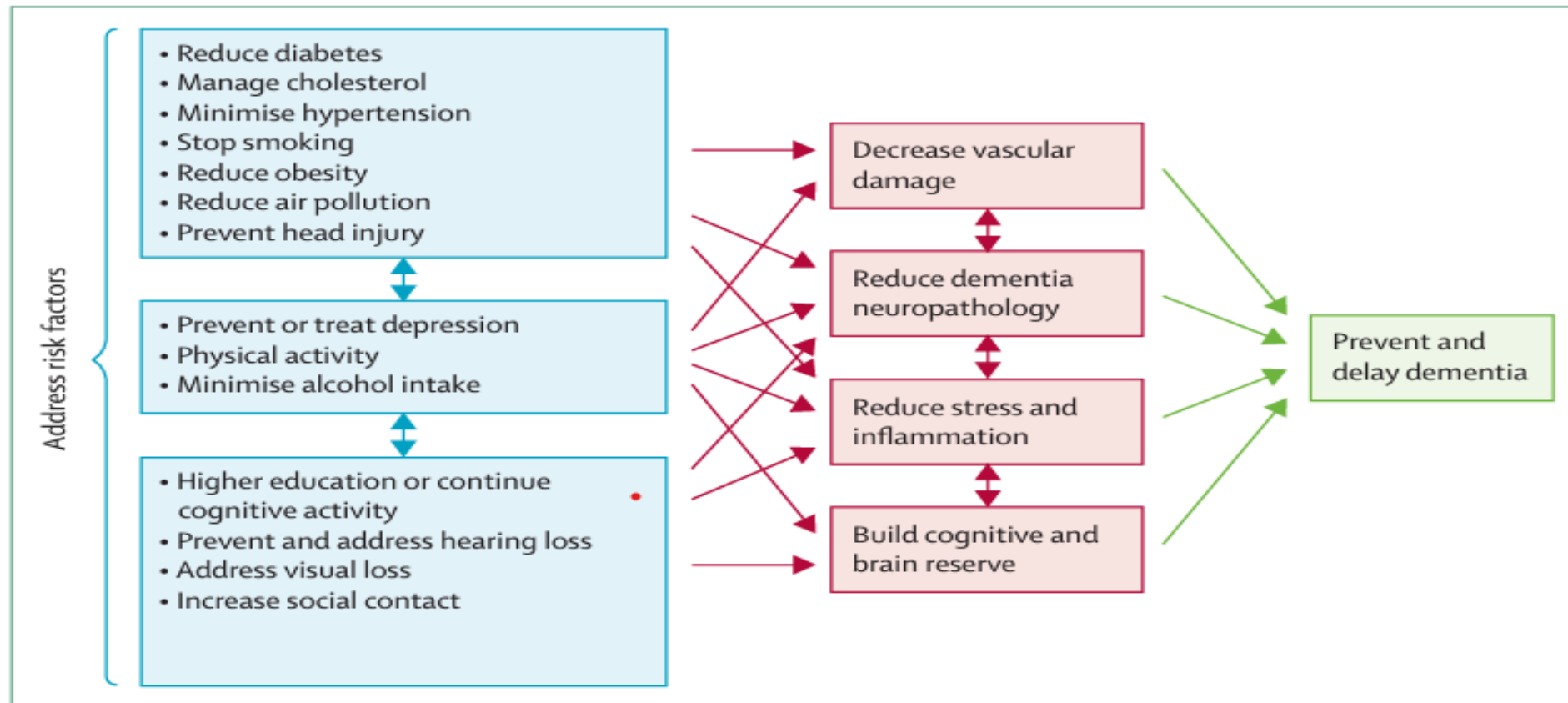14. High LDL

# Case 1-Prevention



**Figure 2:** Possible brain mechanisms for enhancing or maintaining cognitive reserve and risk reduction of potentially modifiable risk factors in dementia
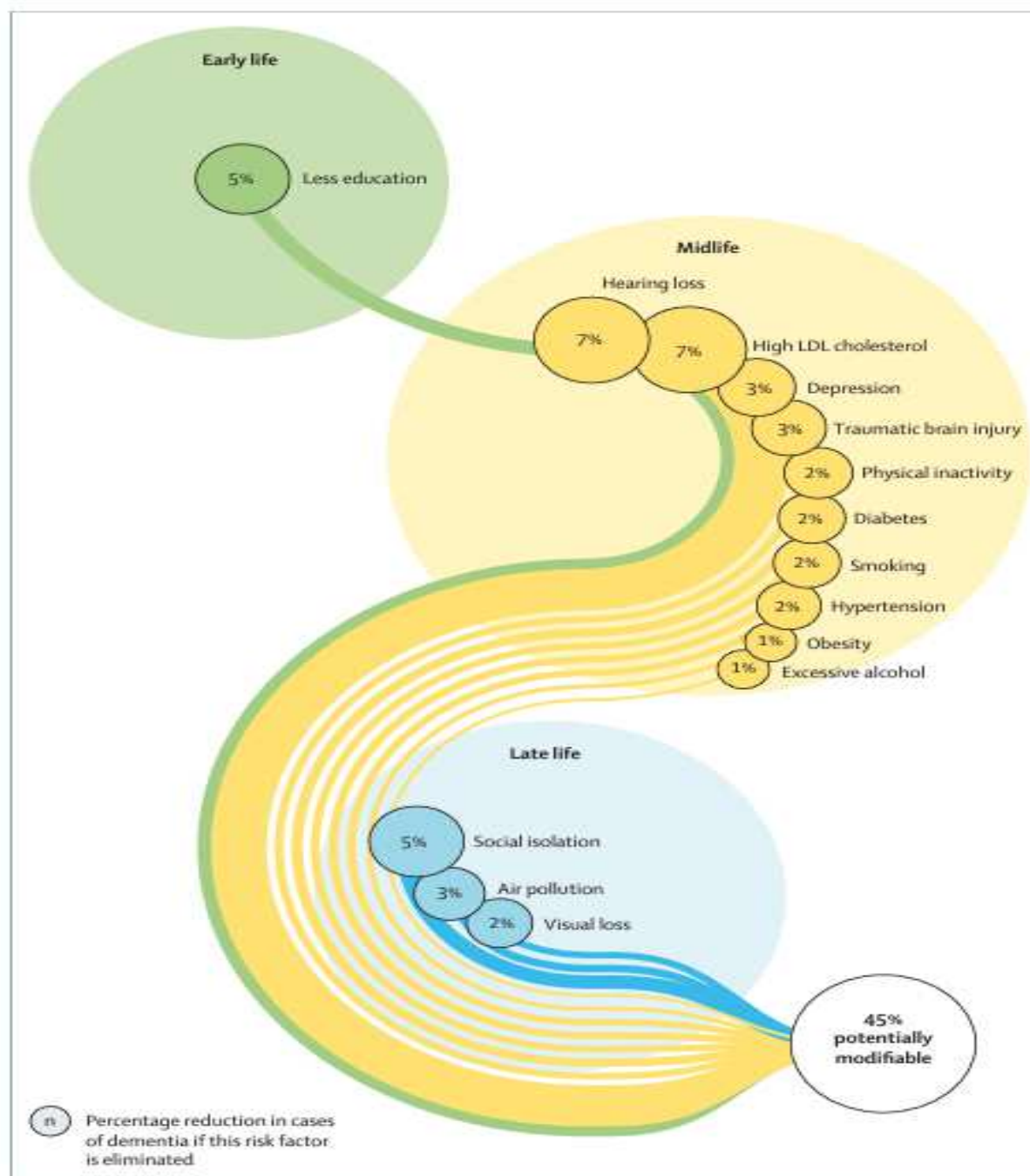
# Dementia over the lifespan



Figure 9: Population attributable fraction of potentially modifiable risk factors for dementia

# Case 1- Prevention



US Standard Drink Sizes

12 ounces beer 5% ABV

8 ounces malt liquor 7% ABV

5 ounces wine 12% ABV

1.5 ounces distilled spirits (gin, rum, vodka, or whiskey) 40% (80 proof) ABV

Alcohol by volume (ABV) refers to the strength of the alcoholic beverage.

www.cdc.gov/alcohol     CDC

- Specific actions
  - Maintain SBP 130 or less after age 40
  - Encourage hearing aids
  - Prevent head injury with helmets
  - Limit alcohol use to less than 12 units weekly (!)
  - Smoking avoidance or cessation
  - Statin for LDL * controversy

"antihypertensive treatment for hypertension is the only known effective preventative medication for dementia"

2020 Lancet Commission

# Case 2-Diagnosis

- 75 year-old male on your schedule with "Check- up"
  - (Never trust the reason for visit)

  - Presents with wife

  - Wife states she brought him to the visit because she is worried about his memory.
    - Trouble managing household bills
    - Forgot how to use the microwave
    - Repetitive questions

# Case 2

- History—
  - From Patient
  - From Family
  - ==Medications-==Alcohol
- Physical Exam
  - Signs for physical illness.
  - Though process and content in conversation
  - Frailty
  - Gait-?Parkinsonism
- Lab
- Imaging

# Case 2- Lab

- Causes of Reversible Cognitive Dysfunction
  - Basic Lab
  - Vitamin B12
    - Loss of intrinsic factor
    - Macrocytic anemia
    - Neuropsychiatric syndrome affecting mood and cognition
  - Thyroid Function
    - Failure of thyroid gland itself
  - Vitamin D
    - Or empiric supplementation
  - HIV and syphilis eval if risk factors or atypical

Budson et all 2022

# Biomarkers and APOE4?

- Amyloid-PET and CSF amyloid and tau assays are FDA approved
- Biomarkers are not diagnostic tests for dementia
  - They identify presence of amyloid
  - Dementia is a clinical syndrome
- Most people with positive amyloid beta biomarker will never develop dementia
- APOE genotype
  - Affects AD risk
  - Many people with AD do not carry this allele

# Case 2-Imaging

- What are we looking for?
  - Vascular issues
  - Anatomic Lesions
    - Tumors
    - Encephalomalacia from old injury
  - Normal Pressure Hydrocephalus
    - Ventriculomegaly
    - 3 W's
  - Amount and pattern of atrophy
    - Bilateral temporal and parietal with relative sparing of other regions-AD
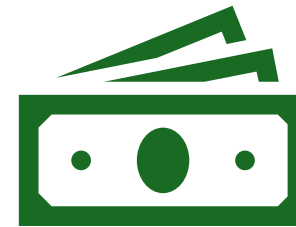    - Predominantly frontal-FTD

Budson et all 2022

# Case 2-Imaging

**CT**

Easier to undergo

Less information

**MRI**

More difficult and expensive

More information

# Case 2-Diagnosis

| Consider | Visit 1 | Visit 2 |
|---|---|---|
| Consider a 2 visit process for diagnosis | Visit 1 is initial history, ordering lab and diagnosis | Visit 2 is cognitive testing and imaging review |

# Case 2-Cognitive Tests

- Detection of Cognitive Impairment is a stepwise, iterative process

- Informal observation by a physician alone is not sufficient

- No single tool is the "gold standard"

- Counseling before and after cognitive assessment is essential

- Informants can provide valuable information about the presence of a change in cognition

Cordell et all 2022

# Mini-Mental State Examination (MMSE)
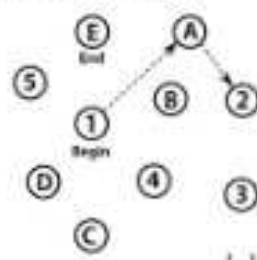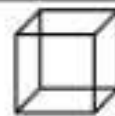
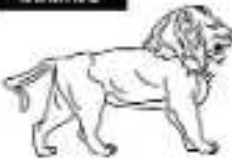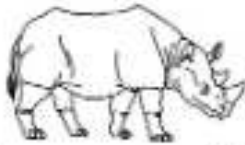Patient's Name: _____     Date: _____

**Instructions: Ask the questions in the order listed.**
**Score one point for each correct response within each question or activity.**

| Maximum Score | Patient's Score | Questions |
|---|---|---|
| 5 | | "What is the year? Season? Date? Day of the week? Month?" |
| 5 | | "Where are we now: State? County? Town/city? Hospital? Floor?" |
| 3 | | The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until patient learns all of them, if possible. Number of trials: _____ |
| 5 | | "I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, …) Stop after five answers. Alternative: "Spell WORLD backwards." (D-L-R-O-W) |
| 3 | | "Earlier I told you the names of three things. Can you tell me what those were?" |
| 2 | | Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them. |
| 1 | | "Repeat the phrase: 'No ifs, ands, or buts.'" |
| 3 | | "Take the paper in your right hand, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.) |
| 1 | | "Please read this and do what it says." (Written instruction is "Close your eyes.") |
| 1 | | "Make up and write a sentence about anything." (This sentence must contain a noun and a verb.) |
| 1 | | "Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.) |
| 30 | | **TOTAL** |

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MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

# Case 2- Cognitive Tests

- MoCa vs MMSA
  - MMSE 100% specific MoCA 87% specific
  - MoCA is more sensitive in detecting MCI
    - 18% for MMSE vs 90% for MoCA
  - More sensitive in detecting mild Alzheimer's dementia
    - 78% for MMSE vs 100% MoCA

# AD8 and Mini Cog

## AD8 Dementia Screening Interview

Patient ID#:_____
CS ID#:_____
Date:_____

| Remember, "Yes, a change" indicates that there has been a change in the last several years caused by cognitive (thinking and memory) problems. | YES, A change | NO, No change | N/A, Don't know |
|---|---|---|---|
| 1. Problems with judgment (e.g., problems making decisions, bad financial decisions, problems with thinking) | | | |
| 2. Less interest in hobbies/activities | | | |
| 3. Repeats the same things over and over (questions, stories, or statements) | | | |
| 4. Trouble learning how to use a tool, appliance, or gadget (e.g., VCR, computer, microwave, remote control) | | | |
| 5. Forgets correct month or year | | | |
| 6. Trouble handling complicated financial affairs (e.g., balancing checkbook, income taxes, paying bills) | | | |
| 7. Trouble remembering appointments | | | |
| 8. **Daily** problems with thinking and/or memory | | | |
| **TOTAL AD8 SCORE** | | | |

Adapted from Galvin JE et al, The AD8, a brief informant interview to detect dementia, Neurology 2005:65:559-564
Copyright 2005. The AD8 is a copyrighted instrument of the Alzheimer's Disease Research Center, Washington University, St. Louis, Missouri.

## Mini-Cog©

### Instructions for Administration & Scoring

ID:_____ Date:_____

#### Step 1: Three Word Registration

Look directly at person and say, "Please listen carefully. I am going to say three words that I want you to repeat back to me now and try to remember. The words are [select a list of words from the versions below]. Please say them for me now." If the person is unable to repeat the words after three attempts, move on to Step 2 (clock drawing).

The following and other word lists have been used in one or more clinical studies.[1-3] For repeated administrations, use of an alternative word list is recommended.

| Version 1 | Version 2 | Version 3 | Version 4 | Version 5 | Version 6 |
|---|---|---|---|---|---|
| Banana | Leader | Village | River | Captain | Daughter |
| Sunrise | Season | Kitchen | Nation | Garden | Heaven |
| Chair | Table | Baby | Finger | Picture | Mountain |

#### Step 2: Clock Drawing

Say: "Next, I want you to draw a clock for me. First, put in all of the numbers where they go." When that is completed, say: "Now, set the hands to 10 past 11."

Use preprinted circle (see next page) for this exercise. Repeat instructions as needed as this is not a memory test. Move to Step 3 if the clock is not complete within three minutes.

#### Step 3: Three Word Recall

Ask the person to recall the three words you stated in Step 1. Say: "What were the three words I asked you to remember?" Record the word list version number and the person's answers below.

Word List Version:_____ Person's Answers:_____ _____ _____

#### Scoring

| Word Recall: _____ (0-3 points) | 1 point for each word spontaneously recalled without cueing. |
|---|---|
| Clock Draw: _____ (0 or 2 points) | Normal clock = 2 points. A normal clock has all numbers placed in the correct sequence and approximately correct position (e.g., 12, 3, 6 and 9 are in anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (11:10). Hand length is not scored. Inability or refusal to draw a clock (abnormal) = 0 points. |
| Total Score: _____ (0-5 points) | Total score = Word Recall score + Clock Draw score. A cut point of <3 on the Mini-Cog™ has been validated for dementia screening, but many individuals with clinically meaningful cognitive impairment will score higher. When greater sensitivity is desired, a cut point of <4 is recommended as it may indicate a need for further evaluation of cognitive status. |

Impairment in IADL or ADL =Dementia

Memory Loss without Impairment =MCI

# MCI vs Mild Dementia

- MCI = transitional stage between normal aging and early dementia

- MoCA detects MCI vs normal cognition (90% sensitive 87% specific)

- Delayed recall is the first domain to be impaired in MCI > AD

- Early MCI =preserved executive and frontal function =compensation

# Cognitive Loss

# Case 2-Progression and Planning

- MCI to dementia =5%-15% per year

- MCI =3 x more likely to progress to dementia over the next 2-5 y

- MCI may or may NOT progress to dementia

- Future is unknown but planning can help with worry

# Case 2-Depression and MCI?

- Prevalence of depression in MCI 25-50%

- MCI may present as depression

- Depression may present as MCI

- Evaluate for both

# Geriatric Depression Scale

**Geriatric Depression Scale**

Name:_____        Date:_____

Instructions: Please circle the best answer for how you felt over the past week.

| | Question | Answer | |
|---|---|---|---|
| 1 | Are you basically satisfied with your life? | Yes | No |
| 2 | Have you dropped many of your activities and interests? | Yes | No |
| 3 | Do you feel that your life is empty? | Yes | No |
| 4 | Do you often get bored? | Yes | No |
| 5 | Are you in good spirits most of the time? | Yes | No |
| 6 | Are you afraid that something bad is going to happen to you? | Yes | No |
| 7 | Do you feel happy most of the time? | Yes | No |
| 8 | Do you often feel helpless? | Yes | No |
| 9 | Do you prefer to stay at home rather than going out and doing new things? | Yes | No |
| 10 | Do you feel you have more problems with memory than most? | Yes | No |
| 11 | Do you think it is wonderful to be alive? | Yes | No |
| 12 | Do you feel pretty worthless the way you are now? | Yes | No |
| 13 | Do you feel full of energy? | Yes | No |
| 14 | Do you feel that your situation is hopeless? | Yes | No |
| 15 | Do you think that most people are better off than you are? | Yes | No |

Source: Yesavage JA, Brink TL, Rose TL et al. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res 1983; 17:37-49.

# SSRI in Geriatric Dementia

- Sertraline 50-200 mg once per day

- Citalopram >60y 10-20mg once per day

- Escitalopram 10-20 mg once per day

BMJ Best Practice

# Red Flags –consider referral

Early and severe behavioral changes

Language problems

Hallucinations

Parkinsonism

Less than 65 years old

# Case 2- Diagnosis

- Summary
  - 2 visit structure
    - First visit to gain history and order labs and imaging etc
    - Second visit to do cognitive test and discuss
  - Be familiar with your cognitive assessment of choice
  - Understand it is a diagnosis over time
  - Rule out the reversible things
  - Mild Cognitive Impairment is more than usual age related but less than dementia and may progress but may not
  - Think about depression

# Now What?

## Next Steps After an Alzheimer's Diagnosis

A diagnosis of Alzheimer's disease can be difficult, but getting accurate information and support can help you know what to expect and what to do next. Use this checklist to help you get started.

NIH | National Institute on Aging

### Learn about Alzheimer's disease

Being informed will help you know what to expect as the disease progresses. Here are some resources:

- ☑ Alzheimer's and related Dementias Education and Referral (ADEAR) Center
  www.alzheimers.gov | 800-438-4380

- ☑ Alzheimer's Association
  www.alz.org | 800-272-3900

- ☑ Alzheimer's Foundation of America
  https://alzfdn.org | 866-232-8484

- ☑ Local hospitals and community centers may have educational programs about Alzheimer's disease and related dementias.

### Get regular medical care

- ☑ Make regular appointments with your primary care doctor or specialist (neurologist, neuropsychiatrist, geriatric psychiatrist).
  www.nia.nih.gov/health/doctor-patient-communication/talking-with-your-doctor

- ☑ Consider going to a memory disorders clinic. Ask your doctor for a referral if desired.

### Find local services and support

- ☑ Find local services by contacting Eldercare Locator
  https://eldercare.acl.gov | 800-677-1116

- ☑ Contact your local Alzheimer's Disease Research Center
  www.nia.nih.gov/health/alzheimers-disease-research-centers

- ☑ Find local chapters, organizations, and support groups:
  - Alzheimer's Association
    www.alz.org | 800-272-3900
  - Alzheimer's Foundation of America
    https://alzfdn.org | 866-232-8484

### Do some legal, financial, and long-term care planning

- ☑ Get information to help you plan.
  www.nia.nih.gov/health/legal-and-financial-planning-people-alzheimers

- ☑ Prepare or update your will, living will, health care power of attorney, and financial power of attorney. To find a lawyer, contact your local bar association or the National Academy of Elder Law Attorneys.
  www.naela.org

- ☑ Learn about care you may need in the future and how to pay for it.
  https://longtermcare.acl.gov

- ☑ Explore getting help to pay for medicines, housing, transportation, and more.
  www.benefitscheckup.org

### Get help as needed with day-to-day tasks

- ☑ Use simple memory aids like a notepad or sticky notes to jot down reminders, a pillbox to keep medications organized, and a calendar to record appointments.

- ☑ Consider using technology solutions for medication management, safety (e.g., emergency response, door alarms), and other care.

# Case 3-

- 77-year-old female to establish care
  - New diagnosis of dementia
  - New to the area. Moved here with new diagnosis to be near adult children
  - Here with husband who is fit and well
    - Caregiving shared with him and with paid caregivers and adult children
  - On treatment for HTN and hyperlipidemia
  - MoCA 15/30
    - Issues with memory, attention and delayed recall
  - Wondering about medication options.

# MoCA and MMSE Scoring

**MMSE**

- <23 = Mild Cognitive Impairment
- 19-23 =Mild Dementia
- 10-18=Moderate Dementia
- <10 =Severe Dementia

**MoCA**

- >26 = normal
- 18-25 =Mild Cognitive Impairment
- 10-17 =Mild dementia
- 4-9=Moderate Dementia
- <4=Severe Dementia

# Cholinesterase Inhibitors

## Mild to moderate AD

- Oral rivastigmine (Exelon)and oral galantamine (Razadyne)

## Mild to severe AD

- Oral donepezil (Aricept) and transdermal rivastigmine
- Donepezil 10 mg as effective as 23 mg dose
- Rivastigmine patch may increase compliance and decrease anticholinergic side effects

Rabbit Hole: Actual photo

# Cholinesterase inhibitors

- AAFP 2024
    - "Moderate quality evidence...modest improvements in cognitive function, ADL and overall clinical state when treated with donepezil for 12-24 weeks"
- BMJ Best Practice
    - "Treatment should be started when the dx of mild AD is made"
    - "..retrospective data from UK indicate that cholinesterase inh associated with a period of cognitive stabilization (2-5mo)before continued decline in cognitive fxn"
- Lancet 2024 Commision
    - .."short-term, modest positive effects and stopping this treatment is associated with worse outcomes in long term."

# Cholinesterase Inhibitors

| Outcome | Standardized Mean Difference | 95% Confidence Interval | Number of Studies |
|---------|------------------------------|-------------------------|-------------------|
| Reduced symptom severity | 0.37 | 0.26-0.48 | 4 |
| Improvement in cognition | 0.78 | 0.33-1.23 | 3 |
| Improvement in ADL | 0.15 | 0.04-0.26 | 5 |
| Decrease in mortality | 0.6 | 0.4-0.89 | 6 |

# Side note-Standardized Mean Difference

- Studies in a meta-analysis that assess the same outcome but measure it in a different way

  o No effect = 0
  o Small effect =0.2
  o Medium effect = 0.5
  o Large effect =0.8

# Cholinesterase Inhibitors

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# Cholinesterase Inhibitors-Longer Term

## Sweden

11,652 took medication 5826 did not.

5 years

0.13 points higher /year on MMSE (95% CI 0.06-0.20) (30 points total on MMSE)

## Similar

1572 total patients

13 years

10 point decrease in MMSE in patients not taking vs 5 point decrease in patient taking medication

All cause mortality decrease HR 0.59 (95% CI 0.53-0.66)

## Observational studies

May have confounding

# Memantine

- NMDA receptor antagonist
- Start 5 mg once per day. Max dose 20 mg (10 mg BID)
- No significant evidence effective in mild AD
- "Combined with donepezil in moderate to severe AD (MMSE 10-21 or MoCA 4-17)leads to modest improvements in cognition and global outcomes"
- Few side effects
- Data is not uniformly consistent

# Memantine

- Cochrane Review 2019
    - 10,000 participants in 44 trials
    - Small clinical benefit for memantine vs placebo in moderate AD
    - 1-2 points on most scales
    - No benefit in mild AD
    - Less confident about other types of dementia
    - Adding memantine to cholinesterase inhibitors =less deterioration

# Memantine

- AAFP 2024
  - "modest clinical benefits and excellent tolerability"
  - Meta analysis 54 studies
    - Combination therapy = better outcomes in cognition, global assessment, ADL and neuropsychiatric sx"
    - Combination therapy > memantine alone
  - "treatment based on patient preference, clinical circumstances and AD progression"

# Amyloid-beta-targeting antibodies

- Aducanumab, Lecanemab,Donemab

- Decrease brain amyloid plaques

- No clinically meaningful improvement in cognition

- 30-40% patient develop amyloid-related imaging abnormalities(ARIA)

- $26,000/patient/year

- Q 2 week infusion

Lancet 2024

# Case 3- Treatment

## Mild dementia

- Donepezil 5 mg daily to start.
- Increase to 10 if tolerated
- Continue as long as tolerated

## Moderate dementia

- Add memantine 5 mg per day
- Increase to 20 if tolerated
- Continue as long as tolerated

Quick to stop if side effects, excessive pill burden or financial burden

# Case 4-Agitation and Advanced Care Planning

- 80-year-old male on the schedule with "Agitated dementia"

- Lives with wife who is his fulltime caregiver

- Able to accomplish some ADL but very compromised

- Agitated in the afternoon

- Wife also wondering about advanced care planning?

# Non-Medication Distress Management

- Do
  - Back off and ask permission
  - Minimize threats and requests
  - Involve in activity (if able)
  - Modify the environment
  - Check yourself

- Say
  - Listen to the frustration or fear
  - Calming phrases providing reassurance
  - Speak the pertinent truth

# Distress Prevention

- Comprehensive Assessment
- Prevention
  - Calm environment
    - Music, lighting, voices
  - Personal comfort
    - Bowel/bladder
    - HALT
  - Routine!
    - Simplicity
  - Exercise and distraction

# Medication for Symptoms

- Atypical Antipsychotics
  - Increased mortality risk
    - OR 1.54 (95%CI 1.06-2.23 P=0.2)
  - Risperidone
    - Similar data compared to brexipiprazole
    - Used off label in US
    - Licensed in UK, Aus, EU
  - Aripiprazole
    - Meta analysis also suggest efficacy

- Brexipiprazole
  - FDA approval for treatment of distress
  - Data for efficacy and safety is not better than other atypicals

## Advanced Care Planning in Dementia

- Preplanning for when home is not safe
  - Visit and tour memory care or SNF/LTC
  - Know the resources you need for the next steps
- Thinking through what to treat and what not to treat
  - When to exit the spiral
  - Thinking of it as a thought exercise

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|---|---|---|
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| How is Alzheimer's Disease Diagnosed? ▶ | Stages of Alzheimer's | Research and Progress ▶ |
| Treatments for Alzheimer's ▶ | Facts and Figures | Assessing Symptoms and Seeking Help |
| Now is the Best Time to Talk about Alzheimer's Together | | |

Your Gift Can Be
Matched 2x Today

**Donate Now**

# Case 3

- **Get Help and Support, Day or Night**
- The Alzheimer's Association is here all day, every day for people facing Alzheimer's and other dementia through our free 24/7 Helpline (800.272.3900). Talk to a dementia expert now and get confidential emotional support, local resources, crisis assistance and information in over 200 languages. It's ok if you don't know where to start. Just give us a call and we'll guide you from there.
  - **800-272-3900**
-

Practical Dementia Resources

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