Dementia and Driving: Geriatric Assessment

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Introduction: Scope of the Problem

Prevalence/cost of Alzheimer's Disease/Dementia:

1. **10% of the population over age 65**
2. **15-20% population over 75 :**
3. **1- 2% at age 65 , with the percentage doubling every 5 years**
4. **5-6 million current cases**
5. **Number of cases doubling over the next 20-30 years**

Driving and the Elderly

- **37 million drivers over age 65(18% increase since 1996)**
- **2008: 84% seniors still driving**
- **Driving represents 90% transportation outside of home**
- **2002 Am J Public Health: on average we are unsafe drivers last 6 years (men) and 10years (women) of our driving years**

Consequences of Driving Loss

- **Decreased socialization/activity level**
- **Increased depression**
- **Increased risk of Nursing Home Placement**
- **Caregiver burden: overwhelming use of family /friends**
- **Despite efforts: great resistance , limited use of mobility services**

Geriatric Assessment Clinic Experience

- **25-45 % patients referred for dementia assessment still driving**
- **Poor outcome based data on assessment and intervention**
- **Classic model of driving assessment focused on physical issues: seizures, vision impairment, CVA and physical disability**

Washington University Study

- 527 clinic patients positive for dementia
- 28% still driving
- 57% not driving; still with license
- 15% license surrendered
- 18% dementia pts still driving positive for crash in past year

Why do dementia patients reduce driving?

- **85% driving conditions: weather/darkness**
- **15 % health issues**
- **0% worsening memory /cognition**

Why Do Dementia Patients Stop Driving?

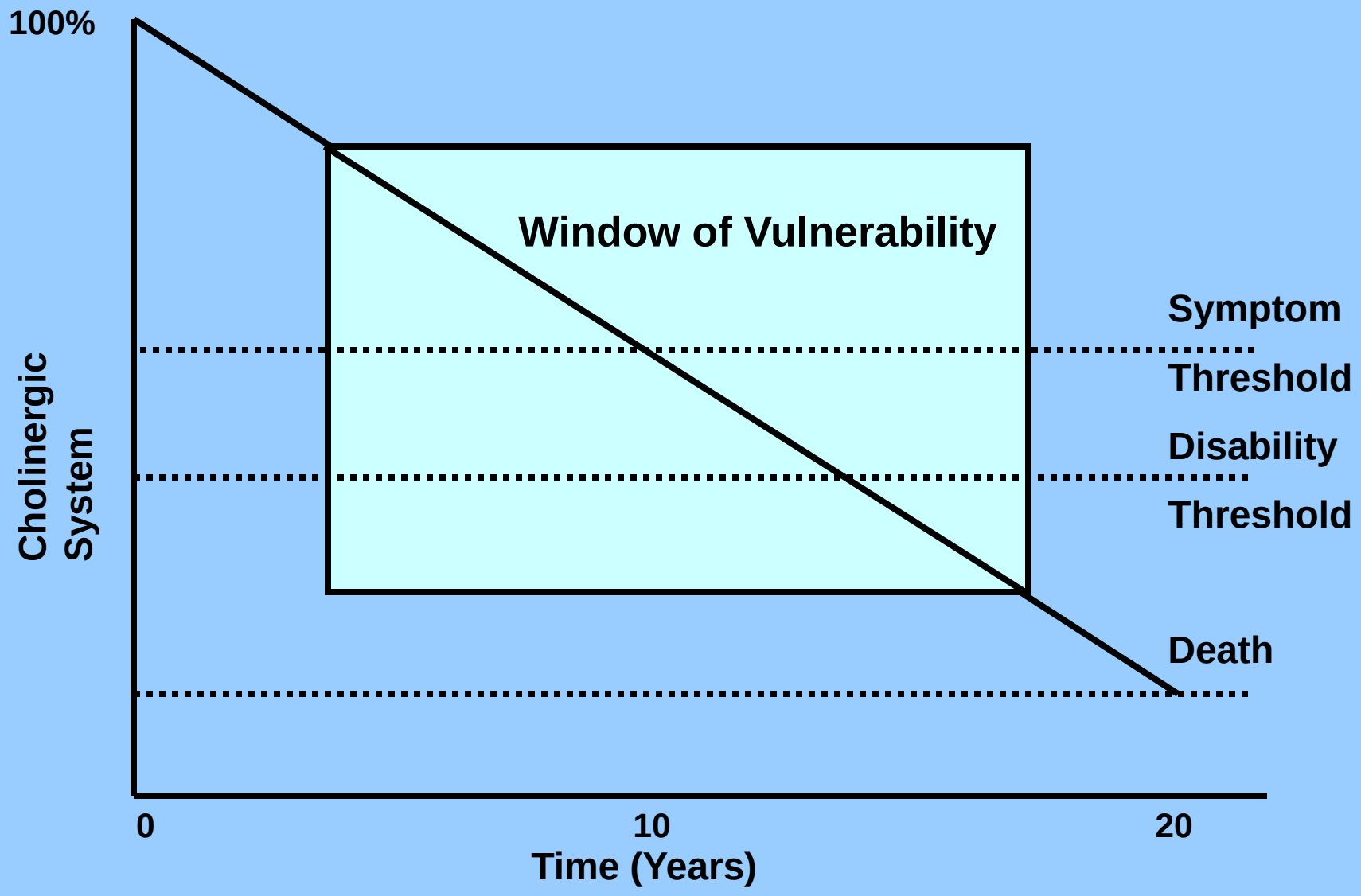
- **20-30% physician**
- **20-30 % family**
- **15-25% accident**
- **10-20% general health**
- **5-10% MVA**
- **5 -10% other**

Goals of Geriatric Assessment

- **Diagnosis**
- **Staging**
- **Treatment: Cognitive Medications**
- **Treatment: Neurobehavioral Complications**
- **Management Medical Co-morbidities**
- **Medication Review**
- **Functional /Mobility/Sensory Review**

Goals of Geriatric Assessment

- **Education /Community Resources**
- **Safety Evaluation: DRIVING**


100%
Cholinergic System
Window of Vulnerability
Symptom Threshold
Disability Threshold
Death
0
10
20
Time (Years)

Differential Diagnosis of Dementia

- **Normal Aging vs. Normal Aging Plus**
- **Normal Aging Plus vs. MCI**
- **Subtypes of MCI**
- **MCI vs. Dementia**
- **Problem /Challenge: each syndrome overlaps with the next ;there is no absolute test to mark where one ends and the next begins**

Differential Diagnosis of Dementia

- **Normal Aging: Frustrating but not disabling**
- **Key Feature: brain is a slower and less efficient computer**
- **Senior moments: information there but slower to access**
- **Language/ acquired skills relatively preserved**

Rate of Memory Deterioration

- **Normal Aging: age 30-55 (25yrs):10% deterioration in memory(5 pts on CVLT)**
- **55-67 (12 years)10%/5 pt drop**
- **67-82 EVERY 5 years 10%/ 4-5 pts**
- **Alzheimer's Disease: 10% drop per year**

Differential Diagnosis of Dementia

- **Concept; Normal Aging Plus**
- **On top of normal aging: any process that destroys more neurons can magnify effects of normal aging**
- **Most common: vascular risk factors including diabetes , hypertension, elevated cholesterol**
- **Head trauma /heavy alcohol use**

Differential Diagnosis of Dementia

- **Normal Aging Plus vs. MCI**
- **MCI: cognitive deficit is more than subjective: measurable impairment on neuropsychologic testing : generally below the 10% compared to your age and education matched peers**
- **Still functionally intact: no disability**

Differential Diagnosis of Dementia

- **MCI vs. Dementia**
- **Dementia: impairment in memory and at least one other cognitive domain**
- **Key is disability ; loss of function**
- **Below 5% in memory and one other cognitive area compared to age and education matched peers**

Differential Diagnosis of Dementia

- **Alzheimer's Disease: most common :at least 50% of dementia is Alzheimer's**
- **20-30% vascular vs. mixed Alzheimer's /Vascular**
- **10-15 %Lewy Body Dementia**
- **5-10% Frontal –temporal Dementia**
- **5-10% rare/ reversible**

Differential Diagnosis of Dementia

- **Alzheimer's Disease:40-60%**
- **Mixed Alzheimer's/Vascular 20-30%**
- **Vascular : previously estimated at 30-40% but on autopsy 70 % presumed vascular dementia cases demonstrate mixed Alzheimer'/vascular pathology ; so pure vascular may be closer to 10-15%**

Differential Diagnosis of Dementia

- **MMSE**
- **30 point standardized brief cognitive exam**
- **Mild dementia: 18-25/30**
- **Moderate 11-18 /30**
- **Severe: 0-11/30**
- **Average decline 2-3 pts/year**

CDR: Clinical Dementia Rating

- **0.5: MCI mild cognitive impairment: measurable memory deficit but functionally intact**
- **1 : mild stage : problems with orientation, problem solving, memory, assistance with finances, high complexity tasks : 50% risk driving impairment, self care intact: mmse 18-24**

CDR: Clinical Dementia Rating

- **2 moderate stage: very high risk impaired driving : at least 80-90%, high risk for crash, mmse below 18/30: should not be living independently**
- **3 severe stage : complete impairment high complexity tasks ; 24 hour supervision , assistance basic hygiene self care; mmse below 11/30**

Clinic Driving Assessment

- **Patient: poor assessors of driving skill**
- **Family: one questionnaire study demonstrated 83% accuracy in predicting driving assessment**
- **Cognitive : mmse little value above 24**
- **18-24/30 : mixed results: 50 % impaired**
- **Below 18 : high probability impairment**

Warning Signs

- **Driving much slower than speed limit**
- **Driving off road**
- **Problems with left turns**
- **Failure to yield right of way**
- **Failure to obey traffic signs**
- **Increased accidents/ unexplained dents**
- **Getting lost /unexplained time missing**
- **Increased anger/confusion driving**

Be Aware : Common Geriatric Risk Factors

- **Hx Falls/Syncope**
- **Vision Impairment**
- **Medication Effects : Psych meds/CNS depressants**
- **Accident rate increases 50% the week after starting benzodiazepines**
- **Drinking**

Neuropsychological Tests

- **Better than MMSE: visual /attention /executive tests such Clock Draw and Trails B (above 2.5 minutes)**
- **Best? : more demanding tests of visual attention**
- **UFOV/ Useful Field of View, Driving Scenes Test/Neurological Assessment Battery, Porteus Maze Test**

Formal Driving Evaluation

- **Very helpful in MCI to Mild Stage to determine if patient should clearly stop driving or be referred to MVA**
- **Road Test vs. Simulator**
- **Road test generally considered highest standard**
- **Limitations: Anxiety/safety issues: driver, evaluator , other drivers**

Physician/Clinic Approach: Be Aware of the Consequences

- **Decreased socialization/activity level**
- **Increased depression**
- **Increased risk of Nursing Home Placement**
- **Caregiver burden: overwhelming use of family /friends**
- **Despite efforts: great resistance , limited use of mobility services**

Physician/Clinic Recs

- **Acknowledge Loss**
- **Arrange alternatives: focus on INCREASING ACTIVITY /MOBILITY**
- **Support Family and assist in referral to MVA or Driving Assessment**
- **Last Resort: license removal may not be end of battle: remove keys, remove or disable car(tell patient car is in repair shop)**

Bottom Line

- **Chronological Age is not a basis in itself to stop driving**
- **Overall Geriatrician Consensus is that dementia in itself should not be automatic basis to remove license**
- **Demonstrated incapacity to drive should be basis to stop driving**

Bottom Line

- **MCI/CDR: possible increased risk; assess for warning signs, consider formal driving evaluation: begin discussion of transition from driving**

Bottom Line

- **Through the 2-4 years of mild stage , risk increases (mmse 18-24) closely monitor for warning signs, low threshold for formal driving evaluation: continue transition from driving: short trips, daytime driving, slow roads, no rush hour, (co-pilot?)**

Bottom Line

- **Moderate Stage : Consensus APA,AAN, AGS, Alzheimer's Association)probable unsafe driver and should be referred to MVA or at minimum formal driving eval**
- **AAN recommended that mild stage should not drive based on meta-analysis : may have underestimated severity(included more moderates in mild group)**

Future

- **Continue to Define Standard of Care/Consensus Statement Regarding Evaluation Guidelines, Mandatory Screening**
- **(currently California/Oregon/Pennsylvania have mandatory referral to MVA for diagnosis of dementia)**

Future

- **Establish best informant screens**
- **Define best neuropsychological tests**
- **Establish Gold Standard for Driving Evaluation Road Test /Simulator**
- **Need research on best methods on how to intervene**