Depression in Dementia in Elderly
An Overview

by
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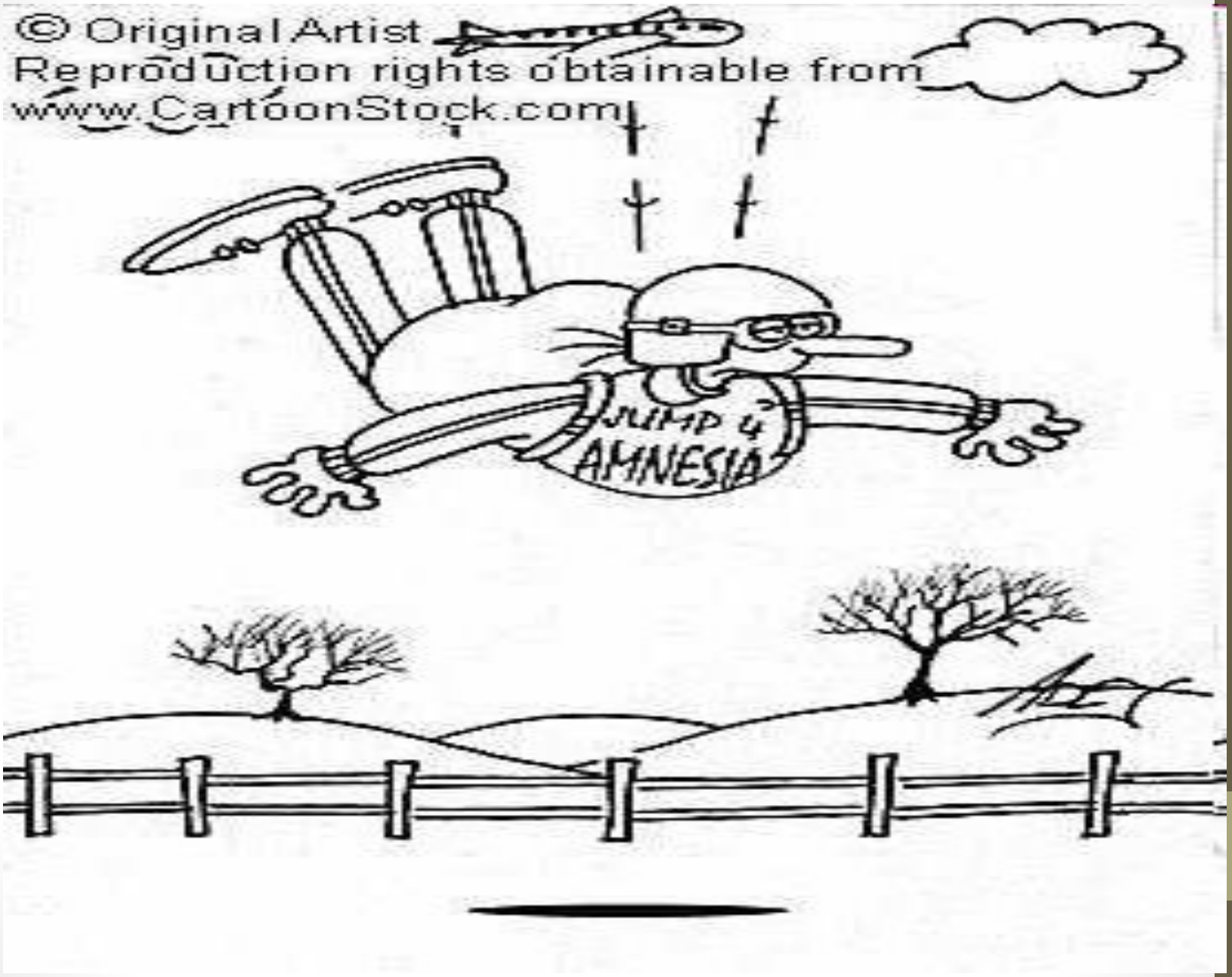
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Introduction

- Dementia - is the progressive decline in cognitive function due to damage or disease in the body beyond what might be expected from normal aging.

- **Depression and dementia are common in older people and their association is very complex.**
- **Comorbid depression complicates diagnosis, affects treatment approaches and outcomes, and decreases the quality of life of affected individuals as well as their caregivers.**
- **Coexistence of depression and dementia has emerged as a significant public health problem leading to increased health care utilization and costs.**
- **Prevalence of comorbid depression or depressive symptoms in individuals with dementia is variable,**
  - **due to differences in methods of assessment,**
  - **diagnostic criteria,**
  - **stages of dementia, and other factors.**

- European Geriatric Medicine Volume 6, Issue 5, October 2015, Pages 479-486

Statistics

- As of 2014 as many as **5.7 million people** in the United States are living with Alzheimer's which is approx. 1.6 percent of population,
- Projected to increase to 3.3 percent by 2060 which is approximately 13.9 million.
- **10 million baby boomers** will develop Alzheimer's in their lifetime.
- Every **71 seconds,** someone develops Alzheimer's.
- Alzheimer's is the **sixth-leading cause of death**.

Alzheimer's Association, 2018; Plassman et al., 2007

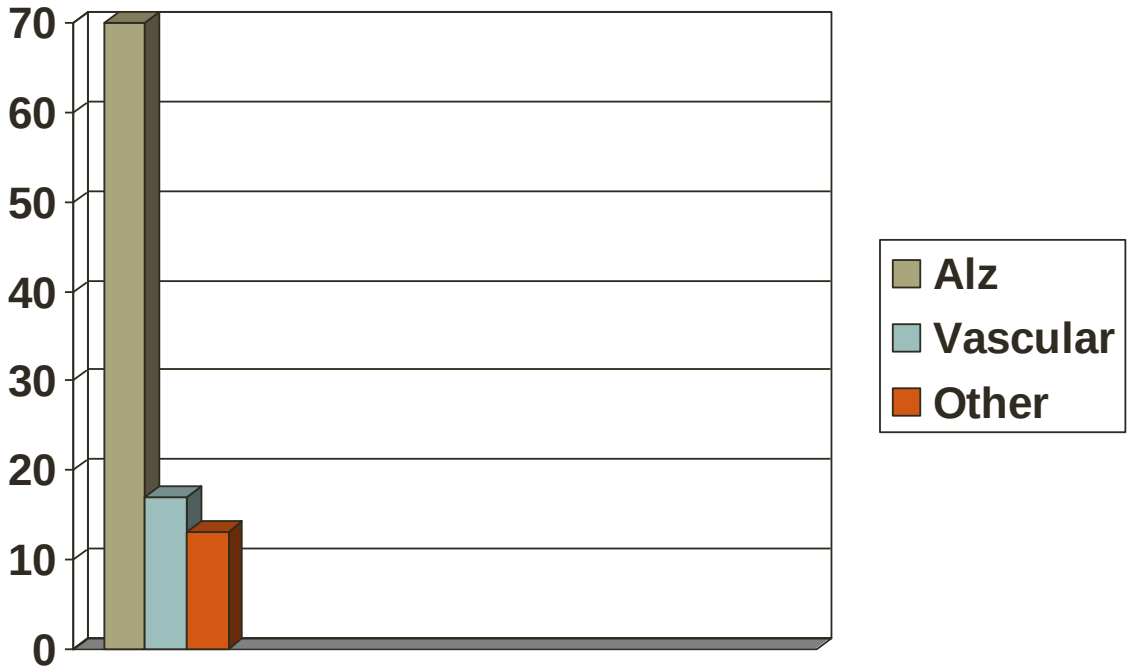
Statistics

- The number of people age 65 and over with Alzheimer's disease is estimated to reach **7.7 million in 2030**, a greater than 50 percent increase from the 5 million age 65 and over who are currently affected.

- Depression in older adults is estimated to range from 7-36 % in the outpatient setting(1),

- patients with dementia, the numbers range from 15-50 %.

Causes of Dementia in People Age 71+, ADAMS, 2002



Source: Plassman, BL; Langa, KM; Fisher, GG; Heeringa, SG;Weir, DR; Ofstedal, MB; et al. "Prevalence of Dementia in the United States: The Aging, Demographics, and Memory Study. *Neuroepidemiology* 2007;29:125–132.

Improvements in rates

higher education levels,

better access to health care,

and improvements in cardiovascular treatments.

supports the notion that “cognitive reserve” resulting from early-life and life-long education and cognitive stimulation may be a potent strategy for the primary prevention of dementia in both high- and low-income countries around the world.[21] However, it should be noted that the relationships among education, brain biology, and cognitive function are complex and likely multi-directional; for instance, a number of recent population-based studies have shown genetic links with level of educational attainment,[22,23] and with the risk for cognitive decline in later-life.[24] Higher levels of educational attainment are also associated with health behaviors (e.g., physical activity, diet, and smoking), more cognitively-complex occupations, and better access to health care, all of which may play a role in decreasing lifetime dementia risk.

Cortical dementias

- Alzheimer's disease
- Vascular dementia (also known as *multi-infarct dementia*), including Binswanger's disease
- Dementia with Lewy bodies (DLB)
- Alcohol-Induced Persisting Dementia
  - Korsakoff's syndrome
  - Wernicke's encephalopathy
- Frontotemporal lobar degenerations (FTLD), including Pick's disease
  - Frontotemporal dementia (or frontal variant FTLD)
  - Semantic dementia (or temporal variant FTLD)
  - Progressive non-fluent aphasia
- Creutzfeldt-Jakob disease
- Dementia pugilistica

Subcortical dementias

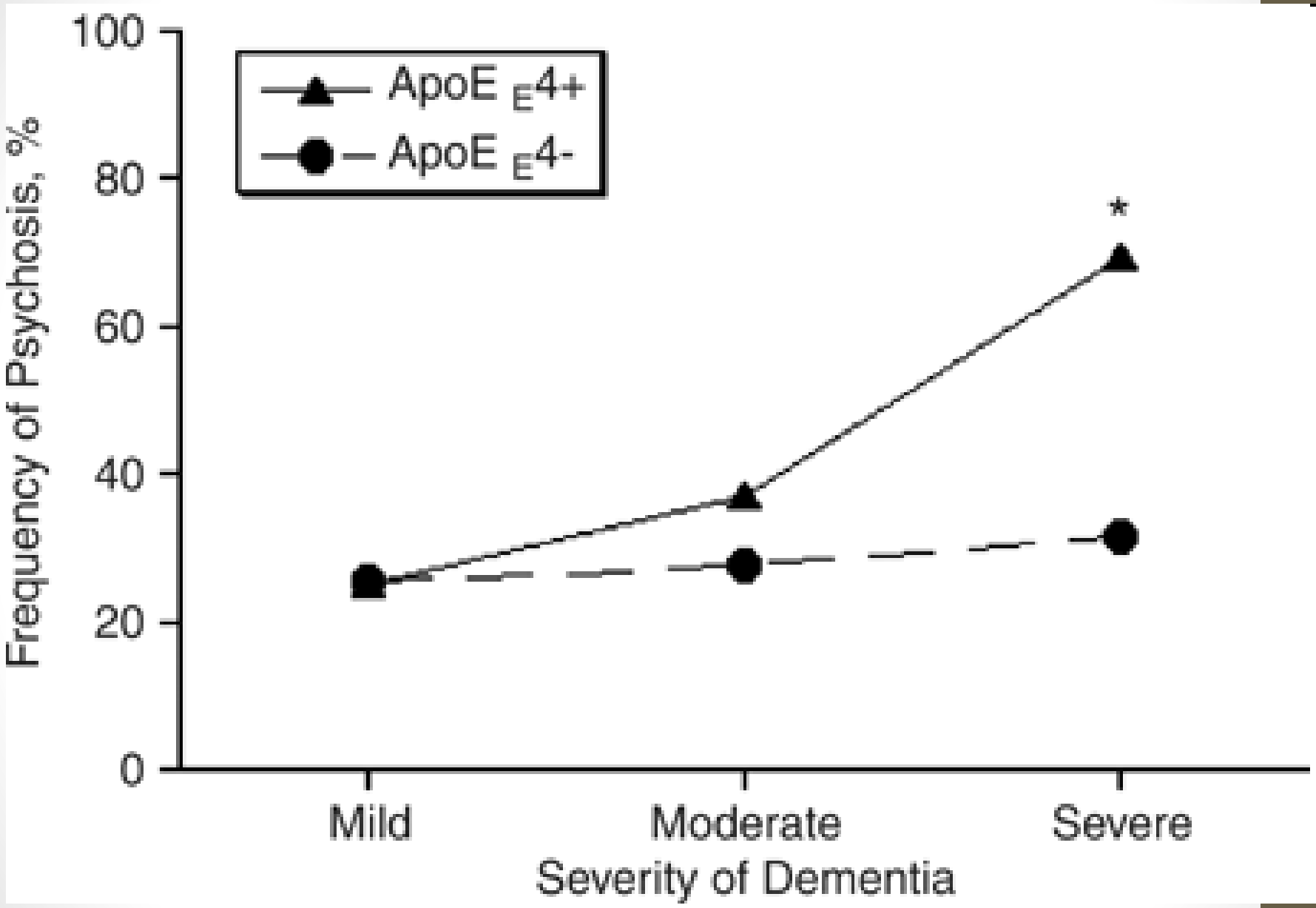
Due to

- Huntington's disease
- Hypothyroidism
- Parkinson's disease
- Vitamin B1 deficiency, Vitamin B12 deficiency, Folate deficiency
- Syphilis
- Subdural hematoma
- Hypercalcaemia, Hypoglycemia
- AIDS dementia complex
- Pseudodementia (a major depressive episode with prominent cognitive symptoms)
- Substance-induced persisting dementia (related to psychoactive use and formerly Absinthism)
- General medical conditions (i.e. end stage renal failure, cardiovascular disease etc.)

Genetics

- AD patients who carry the ApoE epsilon4 allele are at greater risk than non-carriers for developing psychotic symptoms, particularly as the severity of their dementia progresses.

- Neuropsychopharmacology. 2007 Jan;32(1):171-9. Epub 2006 Jul 12.


100
80
60
40
20
0
Frequency of Psychosis, %
ApoE E4+
ApoE E4-
*
Mild
Moderate
Severe
Severity of Dementia

Depression & Dementia

- High prevalence of depression as well as dementia in mistreated older people. Geriatric clinicians should rule out elder neglect or abuse in their depressed or demented patients.

Journal of the American Geriatrics Society[2000, 48(2):205-8]

Depression in Dementia

- sustained and disabling major depressive episodes are more common in those with dementia than in age-matched controls without dementia. The incidence of depression may be 30% in vascular dementia and in Alzheimer's disease, and over 40% in the dementia associated with Parkinson's and Huntington's diseases.

- Rates of depression were significantly higher in subjects with MCI and dementia compared with those with normal cognition at index visit.

- efforts to effectively engage and treat older adults with dementia will need also to addr

- The American Journal of Geriatric Psychiatry
- Volume 23, Issue 9, September 2015, Pages 897-905

- ess co-occurring depression

Signs and Symptoms That May Indicate the Need for Evaluation for Dementia

Cognitive changes

New forgetfulness, more trouble understanding spoken and written communication, difficulty finding words, not knowing common facts such as the name of the current U.S. president, disorientation

Psychiatric symptoms

Withdrawal or apathy, depression, suspiciousness, anxiety, insomnia, fearfulness, paranoia, abnormal beliefs, hallucinations

Signs and Symptoms That May Indicate the Need for Evaluation for Dementia

Personality changes
Inappropriate friendliness, blunting and disinterest, social withdrawal, excessive flirtatiousness, easy frustration, explosive spells

Problem behaviors
Wandering, agitation, noisiness, restlessness, being out of bed at night

Changes in day-to-day functioning
Difficulty driving, getting lost, forgetting recipes when cooking, neglecting self-care & household chores, difficulty handling money, making mistakes at work, trouble with shopping

Symptomatology

It must include decline in memory and in at least one of the following cognitive abilities:

- Ability to generate coherent speech and understand spoken or written language;
- Ability to recognize or identify objects, assuming intact sensory function;
- Ability to execute motor activities, assuming intact motor abilities, sensory function and comprehension of the required task; and
- Ability to think abstractly, make sound judgments and plan and carry out complex tasks.

The decline in cognitive abilities must be severe enough to interfere with daily life.

Management

- Cholinesterase inhibitors (donepezil, rivastigmine, galantamine) and one double-blind placebo controlled trial (rivastigmine) have reported varying degrees of improvement of behavioral symptoms and psychosis of dementia with Lewy bodies (DLB).

- Associated with side effects which include sxs associated with increased acetylcholine like diarrhea, nausea, urinary problems.

- To ensure excess anticholinergic medications are preferably avoided on pt. variability.

"Senile dementia's not 'so bad,' Mrs. Dupont.
It's kind of like having brand new friends every day."

Case

- 56 yo WM brought into see psychiatrist by wife with problems of memory impairment, apathy, amotivation and not wanting to perform routine activities in the house. Pt. has a medical hx of HTN, OA, elevated lipids. Labs were normal and on MMSE pt. scored 23/30. Pt. is on Metoprolol, Hydrocodone, Simvastatin, Aspirin.

Case

- GDS done and patient scored 11/15
- Pt. started on Prozac and after 6 month followup repeat GDS score 6/15, repeat MMSE pt. scored 28/30.

Testing

Cornell Scale for Depression in Dementia Has particular validity in dementia.

Geriatric Depression Scale - 15-item version is useful when time is limited.

Montgomery–Asberg Depression Rating Scale - Can be used as questionnaires and read to patients. Requires training and pre-existing clinical experience in assessing depressive disorders and dementia.

Cognition and Depression

- Cognitive impairment is common in depressed elderly patients
- Screening neuropsych testing (MMSE/MOCA/NPI)
  - Diagnose significant dementia
  - Track cognitive function response over time to treatment
- Focal cognitive impairment assoc. with poor response to antidepressants (exec dysfn, attention deficit)

Case Study

- 57 yo Caucasian male presented to the Memory Clinic with complaints of forgetfulness for 5 yrs.
- Working full-time
- Performed all activities of daily living
- He presented with
  - anhedonia, decreased energy, restless sleep, decreased appetite and unintentional weight loss,
  - Denied depression or suicidal thoughts

Case Study

- Med Hx
  - Gall bladder problems,
  - Sleep apnea
- No hx of head injury
- CT scan head 2011 negative
- Substance Use Hx negative

Case Study

- MMSE 22/30
- Labs negative, including RPR, Vit B12, TSH
- Management
  - Started on Bupropion
  - Neuropsychological testing
  - MRI

Findings

- Neuropsychological Evaluation
  - cognitive deficits
  - impairments in memory encoding and consolidation,
  - Impairments in verbal fluency, visual construction, attention, verbal reasoning and cognitive flexibility
- Rpt MMSE 18/30
- MRI
  - Generalized atrophy advanced for age

Sxs progression

- Pt initially improved
- Due to worsening sxs 2013
  - Retired
  - Applied for disability
- Depression worsened, sleep disturbances, increased anxiety
  - bupropion was increased
- “Slipped” cognitively
- GDS 6/15

Results

- Oct 2014
  - Pt presented to ED with gun-shot wound to chest – suicide attempt
- Biopsy confirmed diagnosis of AD
- Cognitive impaired individual able to plan and execute a successful suicide
- Father committed suicide by gun shot in 1994 after being diagnosed with cancer and losing older son in 1993.

Discussion

- Well educated individual
- Relative insight into prognosis
- Well planned – purchased new gun after previous guns were removed
- Compensating for cognitive deficits leaving cues
  - Able to hide gun, put ribbon on lock box, mark key and put it in his keychain.
- Higher level of cognitive reserve
  - Education,
  - Occupation,
  - Neural resiliency
  - Ability to compensate

Major Depression
DSM-IV-TR criteria

- Depressed mood or loss of interest or pleasure (one of them must be present)
- Diminished interest
- Appetite changes
- Sleep changes
- Loss of energy or fatigue
- Psychomotor agitation or retardation
- Feelings of worthlessness or excessive or inappropriate guilt
- Diminished concentration
- Suicidal ideations, specific plan, and attempts.

Dysregulation of the generalized stress response

- Schematic representation of the central neurocircuitry and its altered activity in acute stress and melancholic depression (chronic hyperactivation of the stress system).
- Hyperfunctioning amygdala, hypofunctioning hippocampus and/or hypofunctioning mesocorticolimbic system (MCLS) could be associated with chronic hyperactivation of the PVN CRH-AVP system and predispose to melancholic depression.
- PVN: paraventricular nucleus, CRH: corticotropin-releasing hormone, AVP: arginine vasopressin.
- Stimulation is represented by solid green lines and inhibition by dashed red lines.

Treatment

Medication

- Selective Serotonin Receptor Inhibitor
- Monoamine Oxidase Inhibitors
- Tricyclic Antidepressants
- SNRI, SDRI

Therapy

- Supportive, Cognitive Behavior, Psychodynamic

ECT

Management

Non-pharmacologic

- The severity of the cognitive impairment in the depression or in the dementia may preclude useful cognitive therapy.
- specific cognitive behavioural therapies, interpersonal psychotherapy and counselling, they have been used with some benefit as part of a comprehensive management of depression and anxiety symptoms in mild dementia.
- Carers and family have a prominent role in supporting these strategies
- Aust Prescr. 2015 Dec; 38(6): 209–2011.

Psychotherapy

- Home delivered Problem Adaptation Therapy is more effective in reducing depression in older adults with major depression and dementia.
- Supportive Therapy-Cognitive Impairment is less effective.
- Antidepressants have limited efficacy.
- Home-delivered psychosocial treatments may reduce suicidal ideation in this population.

- Journal of Alzheimer's Disease, vol. 48, no. 2, pp. 453-462, 2015

Therapies

- *Behavior Therapy-Pleasant Events (BT-PE). —*
  - teach caregivers behavioral strategies for improving patient depression
    - increasing pleasant events
    - using behavioral problem-solving strategies
    - Alter the contingencies that relate to depression and associated behavior problems.

- *Behavior Therapy-Problem-solving (BT-PS). —*
  - Allowing caregivers more input into the content and flow of treatment.
    - problem-solving situations of concern
    - education, advice, and support to caregivers.

Therapies

- 60 minute session
- 9 session – one per week
- Provide The Pleasant Events Schedule
- Goal- Identifying and Confronting behavioral disturbances that interfered with engaging in pleasant activities.
  - observing antecedents
  - consequences of these difficulties, and
  - devising problem-solving strategies for modifying problem behaviors

Therapy Results

- Patients and caregivers receiving behavioral treatment improved significantly
- Patients with major depressive disorder were most likely to benefit from treatment
- Pre- dominantly dementia-related symptoms, such as difficulty concentrating, were less likely to show improvement.
- Importance of realistic expectations when treating these patients.

Conclusion

- considerable overlap between dementia and depression symptomatology.
- unrealistic to expect any depression intervention, whether pharmacological or nonpharmacological, to successfully impact symptoms that are entirely caused by a progressive dementia, such as AD
- Incorporating components such as patient and caregiver health status and family and social support
- Expanding duration and content of treatment
- Combining Non-Pharmacologic and Pharmacologic treatment modalities

Pharmacologic Management

- antidepressants should generally be reserved for individuals with depression where the symptoms are distressing and surpass the threshold for major depression. Acetylcholinesterase inhibitors and memantine are effective in the symptomatic treatment of Alzheimer's disease but current evidence does not support their use to treat depressive symptoms in dementia.
- Pain can be a frequent problem in dementia and may have significant effects on behavior and mood.
- Adequate analgesia plays a role in improving mood.

- Drugs & Aging February 2017, Volume 34, Issue 2, pp 89–95

Management

Pharmacologic

- SSRI preferred as first line
- Treatment at least for 4-6 weeks
- Explain Black box warning
- Assoc. with Serotonin Syndrome
- Need to be aware of interactions
- Concern about side effects, hyponatremia
- Can take longer in older patients for effect
- Decreased receptors density in older patients.

Prospect Study

- Drugs simpler to administer are preferred
- Nortyptiline – serial EKGs
- MAOI – special diet
- Tolerability is preferred over efficacy for eg. in the case of bupropion over lithium for augmentation.
- Goal is to target different receptors with each medication

Prevention of suicide in primary care elderly – Collaborative trial, Int J Geriatr Psychiatry 2001; 16: 585-592

Drug Interactions

- HCTZ and Lithium
- Prozac and Hydrocodone
- Celexa and Zithromax

Prospect Study

- Older depressed pts. Presented with somatic symptoms like dizziness, headaches, stomach complaints, tremulousness, pain
- Discontinuation rates in randomized trials are about one-third lower with SSRIs than with TCAs (Scheider 1996)
- SSRI lack significant anticholinergic and cardiac toxicity
- Combination treatment preferred and better response both IPT and pharmacotherapy.

Prevention of suicide in primary care elderly – Collaborative trial, Int J Geriatr Psychiatry 2001; 16: 560-569

Prospect Study

- Medical burden can lead to increased rate of depression and risk of suicide
- Depression can adversely affect the prognosis of comorbid medical illness
- Disability can lead to increased risk of first-onset depression in elderly
- Two-fold increased risk of future dementia in pts with depression

Prevention of suicide in primary care elderly – Collaborative trial, Int J Geriatr Psychiatry 2001; 16: 560-569

Stroke & Depression

- Post stroke cognitive complaints are prominently related to subclinical depressive symptomatology
- In non-stroke samples cognitive complaints are more related to depression than to objective cognitive performance
- Complex interplay between post-stroke cognitive complaints, cognitive impairment, and depressive symptoms and CVA lesions.
- Important in clinical practice to pay attention to lacunar stroke pts with subclinical depressive symptoms.

Yun et al, Int J Geriatr Psychiatry 2011; 26: 1144-1151

Percentage of Medicare Beneficiaries Age 65+ With Alzheimer's Disease and Other Dementias who had specified Coexisting Medical Conditions, 1999

Coexisting Condition & Percentage With Alzheimer's or Other Dementias and the Coexisting Condition

- Hypertension 60%
- Coronary heart disease 30%
- Congestive heart failure 28%
- Osteoarthritis 26%
- Diabetes 21%
- Peripheral vascular disease 19%
- COPD 17%
- Thyroid disease 16%
- Stroke – late effects 10%

- Source: Bynum, JPW; Rabins, PV; Weller, W; Niefeld, M; Anderson, GF; and Wu, AW. "The relationship between a dementia diagnosis, chronic illness, Medicare expenditures and hospital use." *Journal of the American Geriatrics Society* 2004;

- Wide ranging impact of depression
- Need to assess for
  - suicidality,
  - hopelessness,
  - substance abuse,
  - anxiety,
  - cognitive functioning,
  - medical comorbidity,
  - functional limitation,
  - social support,

Lifestyle for elderly

- I. Leisure Interests and Activities
- II. Membership and Participation in Organizations
- III. Housing and Living Arrangements
- IV. Use of Community Resources
- V. Health and Health Care
- VI. Work and Retirement
- VII. Looking Toward the Future

- Thank you
- Questions & Concerns !!!