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Common Misinterpreted Sleep Behaviors in our Elderly Population

Friday, July 28, 2017

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Type of Potential Conflict	Details of Potential Conflict
Grant/Research Support	**NONE**
Consultant	
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Financial support	
Other	Any remaining typos in this presentation are the responsibility of the editor

Common Misinterpreted Sleep Behaviors in our Elderly Population

Objectives:

- Consider common behaviors that are often missed, overlooked, or misunderstood
- Think about some side effects caused by commonly prescribed medications
- Review a few pathways that are affected by medications
- Discuss the value of the Clock Test

Sleeping Sally

- Your talking to your mother in law (MIL) and you see this?
- MIL is
  - A. Hitting the “juice a bit to hard”
  - B. Is using pramipexole
  - C. Natural response to your boring conversation
  - D. May benefit from memantine

Sleeping Sally

- Most affected:
- Those taking dopamine agonists
  - Parkinson's patients
  - RLS patients
- Falling asleep at the wheel
- Dopamine agonists
  - Rotigotine
  - Pramipexole
  - Ropinerol

- Side Effects:
- 10% Compulsive behaviors
  - Eating
  - Shopping
  - Gambling
  - Hyper-sexuality
- 56% Sleepiness
- 10% Sleep attack while driving
- 42% at 16 months Augmentation

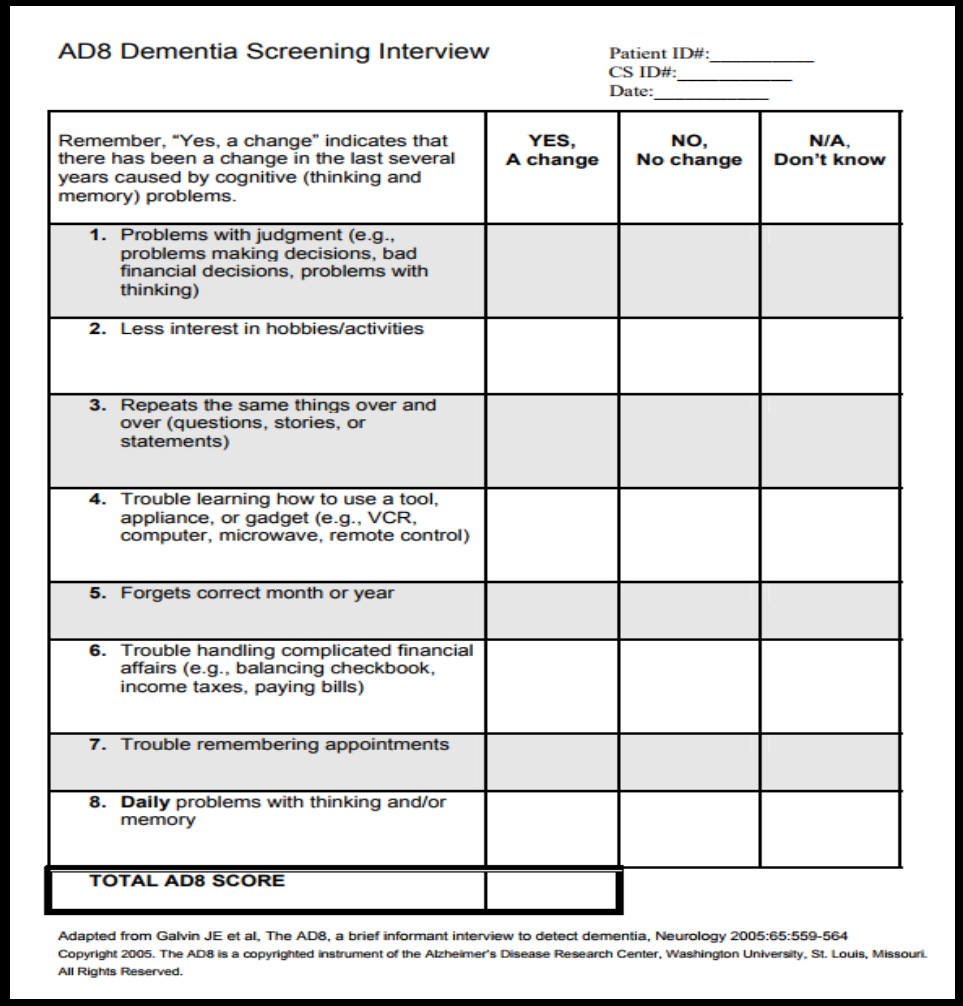
Wandering Wilson
Sleep Related Injuries

- Wandering
- Walking and wandering may be viewed as “same”

- 60% Alzheimer’s disease
- 50% who are not found within 24 hours face serious injury or death

Mangini, Consult Pharm, 2017, Brittain, Sociol Health Illn, 2017

Sleep Related Injuries
Screening Tests for Cognitive Impairment

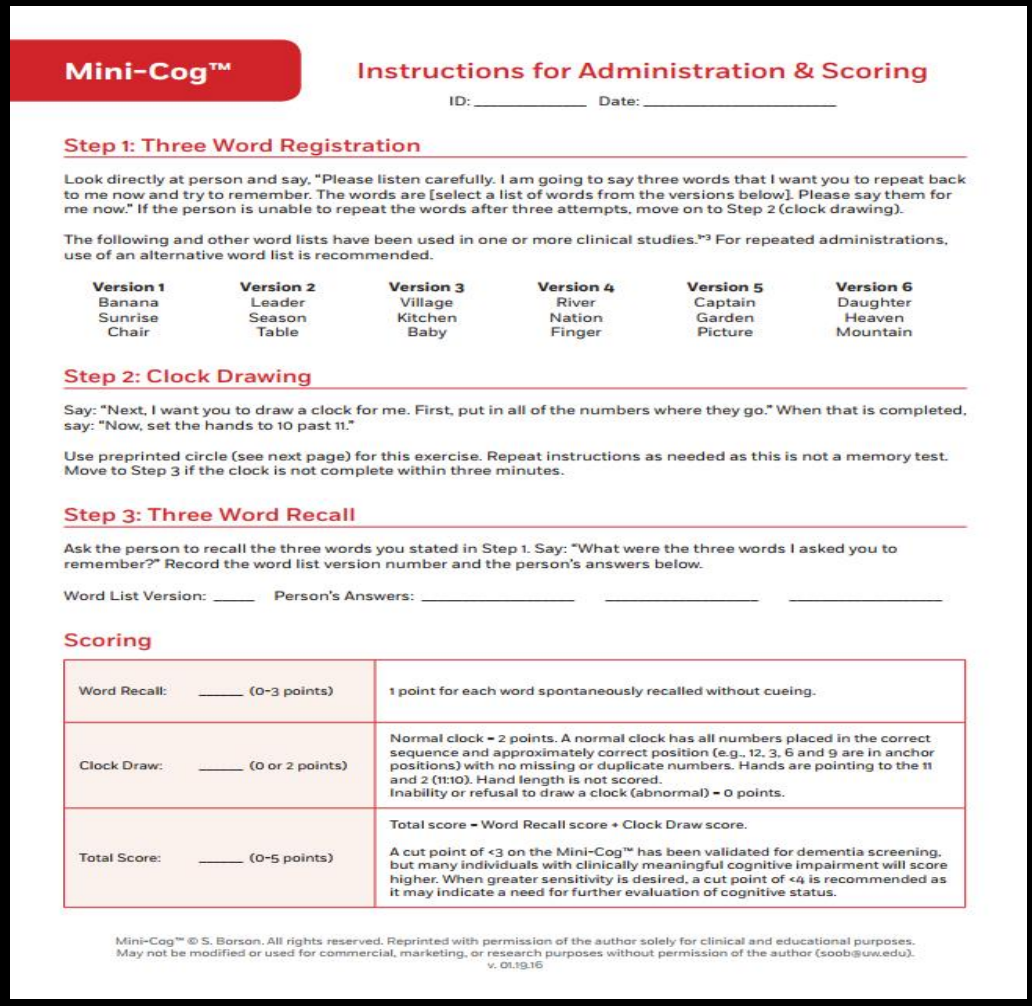


AD8 Dementia Screening Interview

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



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.

Sleep Related Injuries
Clock testing for dementia

Concrete

- 11:10
- 2:30
- 3:45

Abstract

- 10 past 11 not 11:10
- Half past 2 not 2:30
- Quarter to 3

Sleep Related Injuries
3 item recall for dementia

Information went in and is retrievable

Vascular Dementia

- Banana
- Sunrise
- Chair

- Unrelated words
- Hints often produce the word

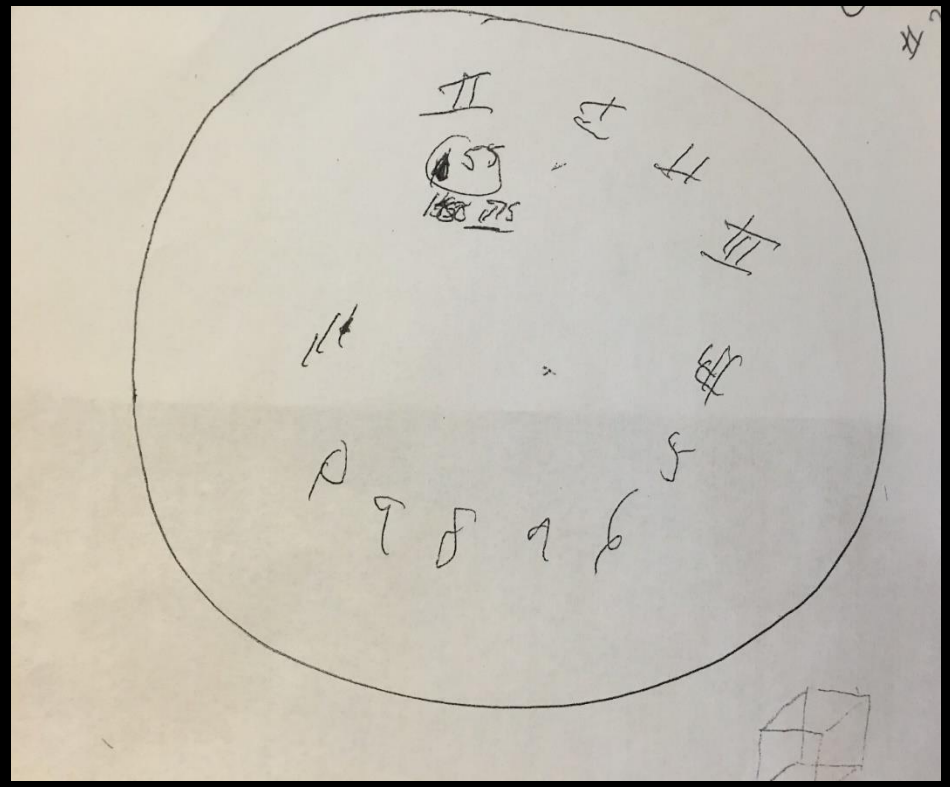
Information never went in

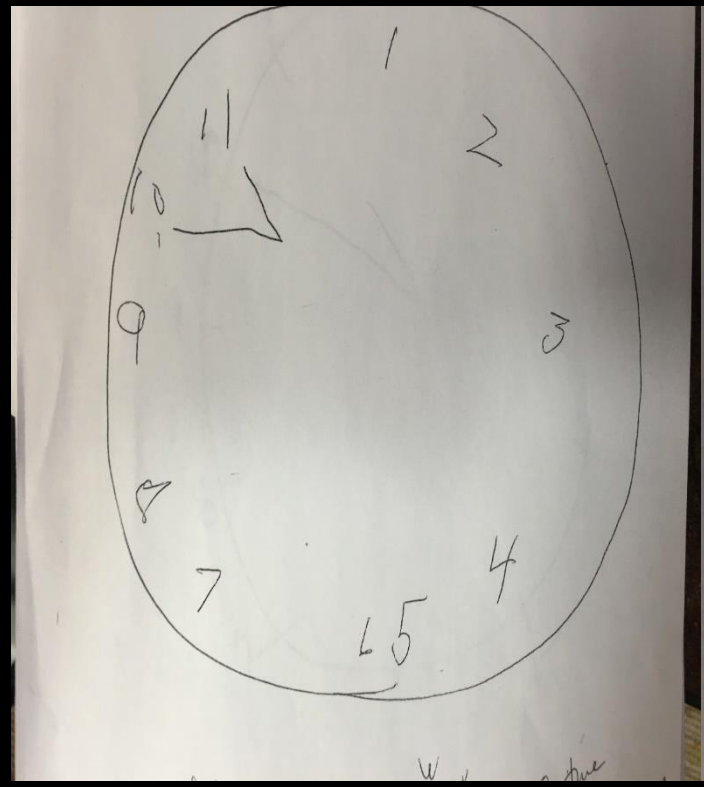
Alzheimer's Dementia

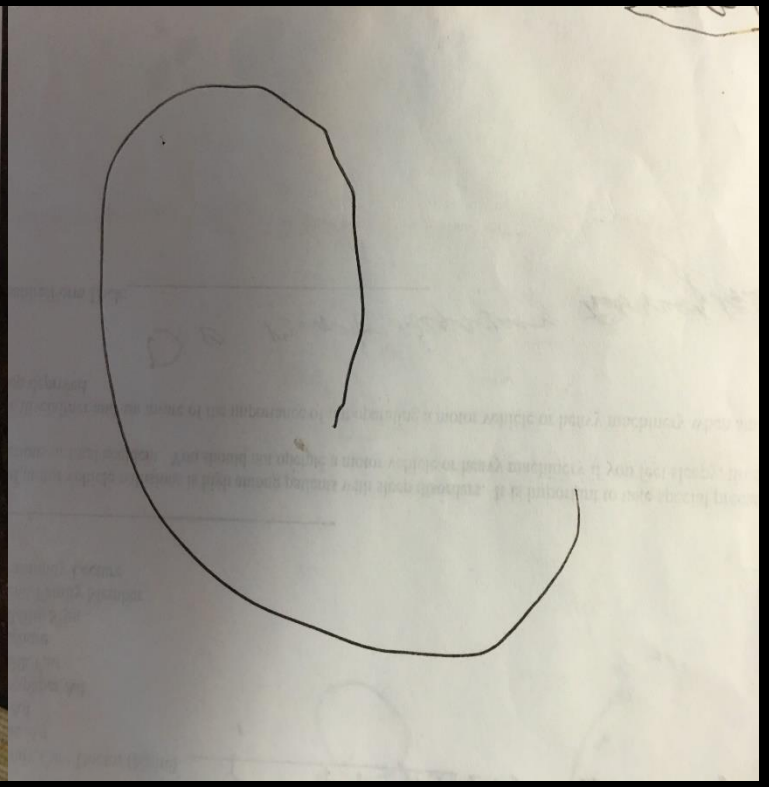
- 10 past 11 not 11:10
- Half past 2 not 2:30
- Quarter to 3

- Hints do not produce the word

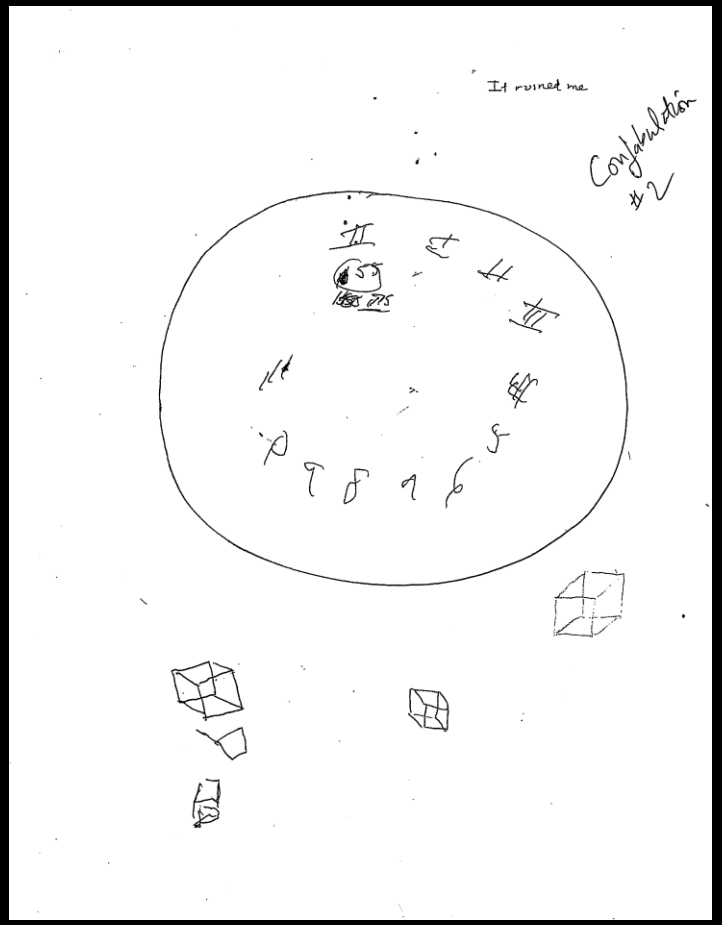
Sleep Related Injuries
Clock testing for dementia

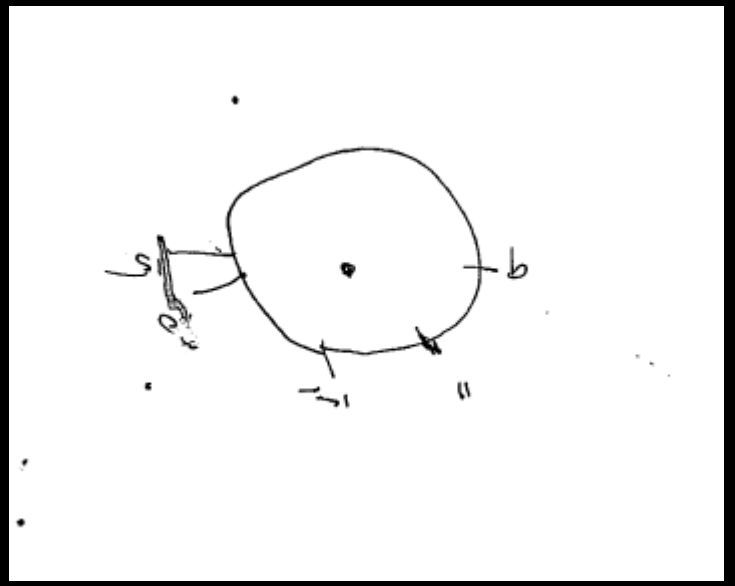


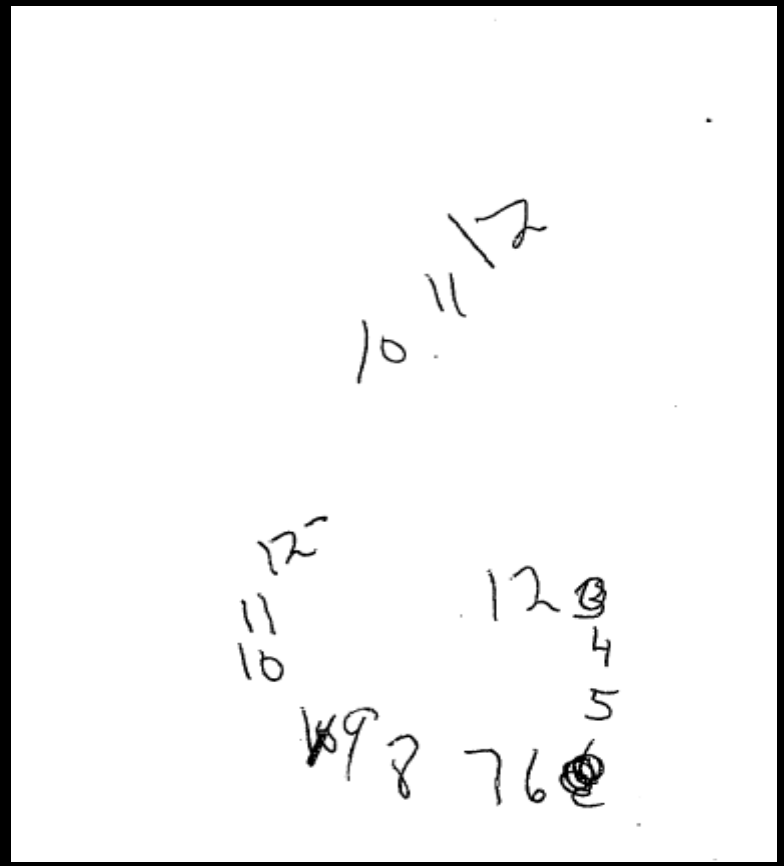




Sleep Related Injuries
Clock testing for dementia







Violent Verge
Sleep Related Injuries

Violence and Sleepwalking

- Impulsive aggressive behaviors during sleep are predominantly inherited

Brittain, Social Health Ill, 2017;
Stallman, BJPsych Open, 2017

Moving Mary
RLS and PLMS

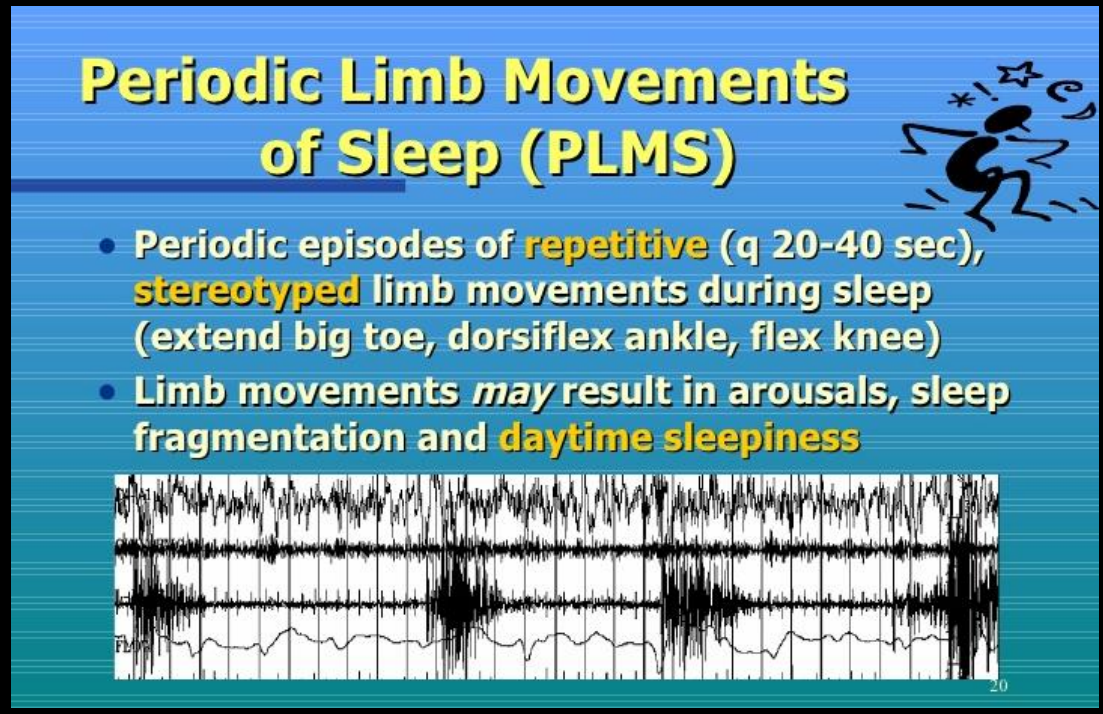
- Restless Legs Syndrome
- Periodic limb movements of Sleep (PLMS)
- A single variant in the BTBD9 gene on chromosome 6 contributed to 50% of the population risk for RLS
- RLS: 80% have PLMS
- Mirtazapine provoked PLMS 67% of young healthy males

- Associated with Increased CVD
- Surges of nocturnal sympathetic hyperactivity:
  - HR increases 12-23% following a PLMS
- and BP: systolic rise 20-30 mm Hg, diastolic rise 10-12 mm Hg.

Kendzerska et al, Sleep, 2017; Fulda, Sleep; 2013

Moving Mary
RLS and PLMS

- Antidepressants: 9% develop RLS
- Mirtazapine 28% develop RLS
- 2 weeks hits a low
- Older Men Study
- Hazard Ratio = 2



Kendzerska et al, Sleep, 2017; Fulda, Sleep; 2013; Winkelman et al, Sleep, 2017

Acting Out Alice
A marker of things to come
REM Behavior Disorder

Will I develop Parkinson's?

- Synucleinopathy
- Parkinson's Disease (PD)
- Lewy Body Dementia (DLB)
- Multi-system Atrophy (MSA)

iRBD

- 5 years 18%
- 10 years 40%
- 12 years 52%

Acting Out Alice
A marker of things to come
REM Behavior Disorder

Rapid Eye Movement (REM) behavioral disorder (RBD) < 50 years of age

- Females > males
- Antidepressant medication
- Autoimmune disease
- Narcolepsy

Rapid Eye Movement (REM) behavioral disorder (RBD) > 50 years of age

- Males > females
- Increase in violence

Acting Out Alice
A marker of things to come
REM Behavior Disorder

Idiopathic RBD
Ages 40-85
> 5 years education

45% developed a neurodegenerative disease at 3.6 years

93% of Dementia-first patients had MCI at baseline

Close relationship between olfactory function and central cholinergic processing in the hippocampus.

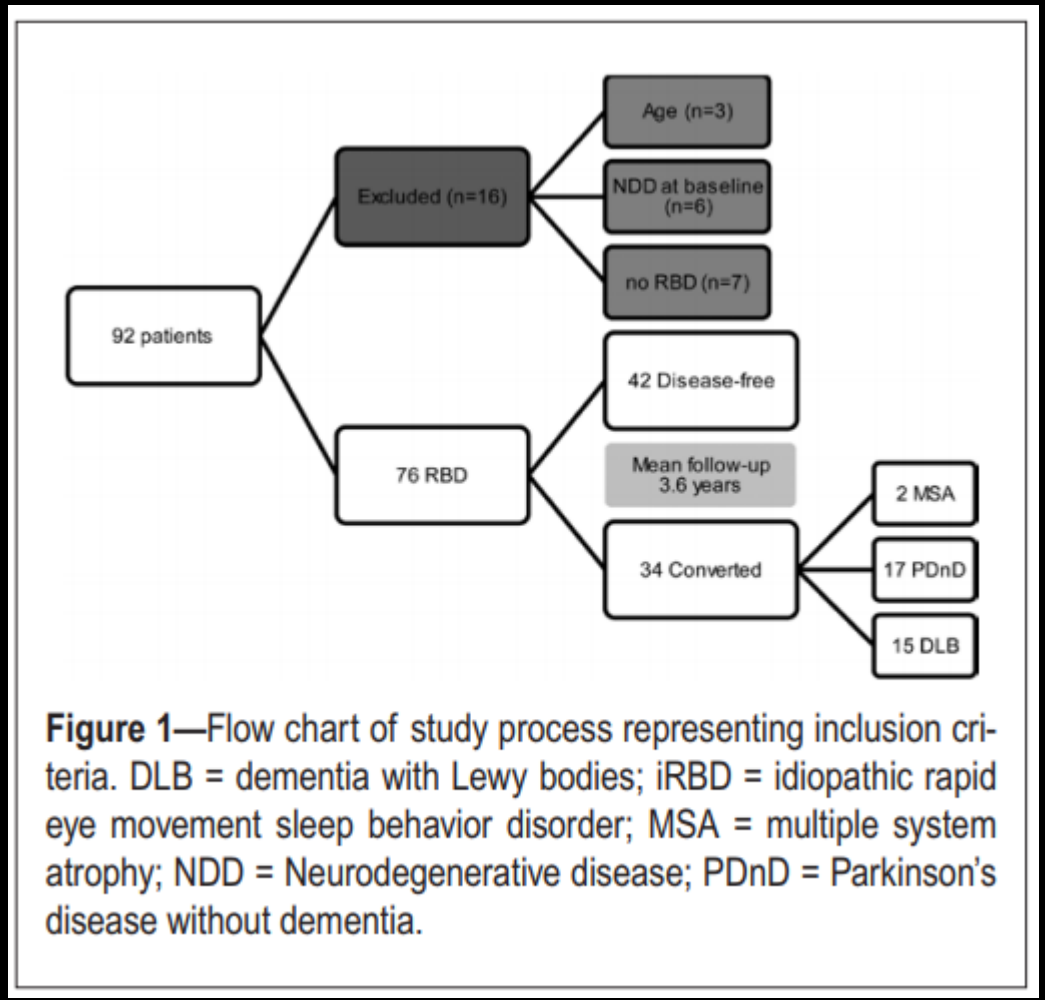


Figure 1—Flow chart of study process representing inclusion criteria. DLB = dementia with Lewy bodies; iRBD = idiopathic rapid eye movement sleep behavior disorder; MSA = multiple system atrophy; NDD = Neurodegenerative disease; PDnD = Parkinson's disease without dementia.

Marchand, et. al., Sleep 2016;
Marchand, et al. Sleep 2017

Acting Out Alice
A marker of things to come
REM Behavior Disorder

Akinetic-rigid type PD

- 1986 Schenck
- Olfactory dysfunction
- RBD
- IRBD 80% of males, aged 50 and older develop a neurodegenerative disorder
- Hyposmia and RBD has a prevalence of > 80% in PD and greater cognitive impairment
- RBD + PD is akinetic-rigid-type

Other form: Tremor Type PD

Kang, et. al., J Neurol Sci, 2016

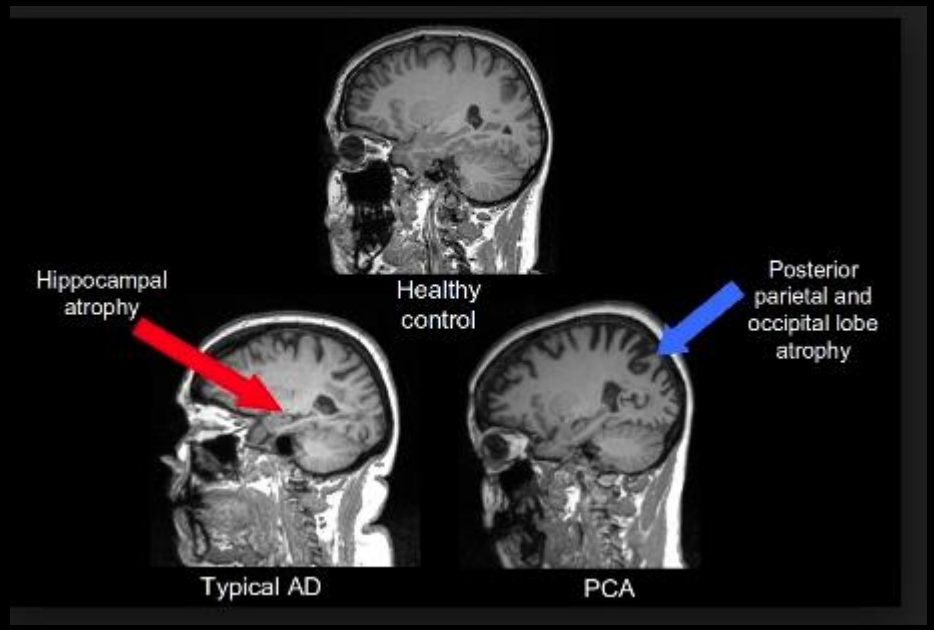
Sleepless Sam

- COPD may secondarily cause severe sleep deprivation and precipitate a parasomnia

Lucid Lucy
Lucid Vivid Hallucinations

Posterior cortical atrophy

- Eyes are normal: memory and language are spared
- Brain is shrinking: unable to interpret information
- Visuospatial deficits
- Misrecognition of familiar faces and objects
- Onset often mid-50s

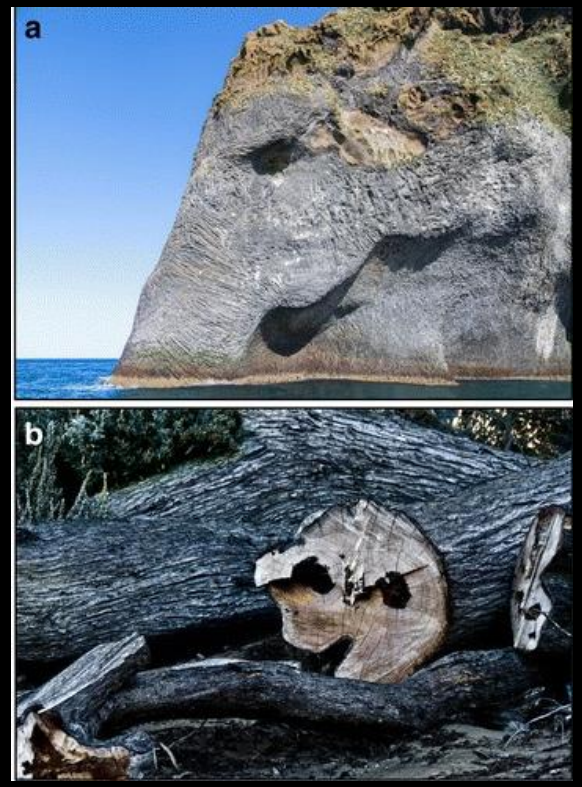


Lucid Lucy
Lucid Vivid Hallucinations

Lewy Body Dementia

- Visual hallucinations are associated with a tendency to accept illusory perceptions as real in order to avoid missing true perceptions.
- Providing a rich visual environment that eliminates visual ambiguity and providing environmental cues may reduce hallucination frequency

Naturally Occurring Pareidolia



Bowman, Cogn Res Princ Implic, 2017

Lucid Lucy
Lucid Vivid Hallucinations

- Idiopathic REM behavioral disorder
- Pareidolias
- 50% develop DLB

- Pareidolias: ambiguous forms that are perceived as meaningful objects

Sakuma, Sleep, 2017

Lucid Lucy
Lucid Vivid Hallucinations

Charles Bonnet Syndrome

- 1760
- Charles Bonnet documented complex visual hallucinations experienced by his 90-year-old grandfather.

Santos-Bueso, Arch Soc Esp Oftalmol, 2016; Pang, Optom Vis Sci, 2016

Lucid Lucy
Lucid Vivid Hallucinations

Charles Bonnet Syndrome

- Presence of simple or complex visual hallucinations in patients with deteriorated vision and preserved cognitive status.
- People over 65
- 15-30% of patients with poor vision
- Hallucinations involve people and faces in movement and color
- Hallucinations last seconds to hours

Lilliputian

Santos-Bueso, Arch Soc Esp Oftalmol, 2016

Lucid Lucy
Lucid Vivid Hallucinations
Certain Medications May Go Either Way

Donepezil

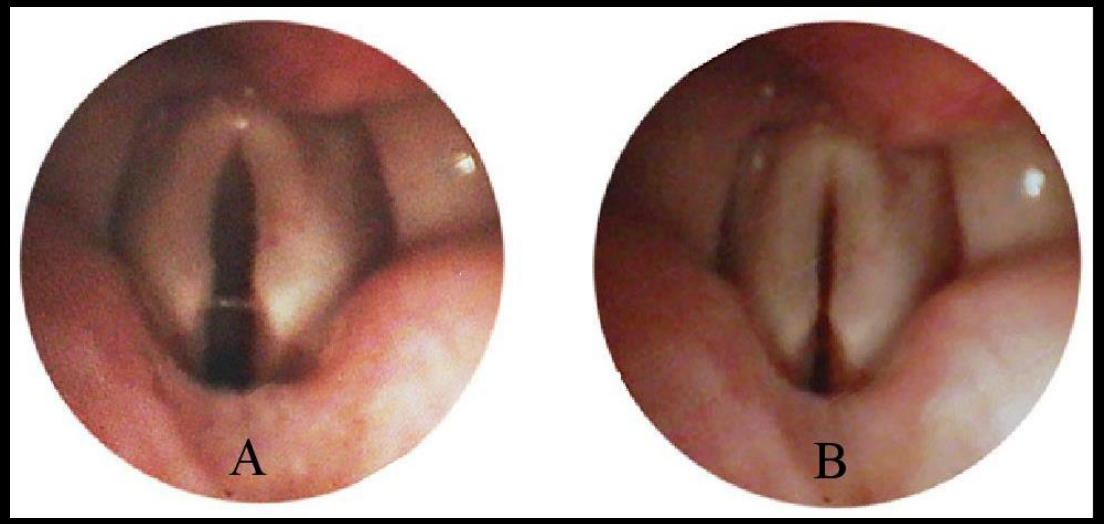
- Acetylcholinesterase inhibitor
- Increased acetylcholine in the Pons activates REM dreams

Memantine

- NMDA receptor antagonist
- Neuroprotective effects by inhibiting excitotoxic effect of NMDA glutamate receptors
- May worsen psychotic symptoms in LBD
- May suppress agitation

Inspiratory Ida
Stridor During Sleep

Multiple System Atrophy (MSA)



Early symptom - Stridor

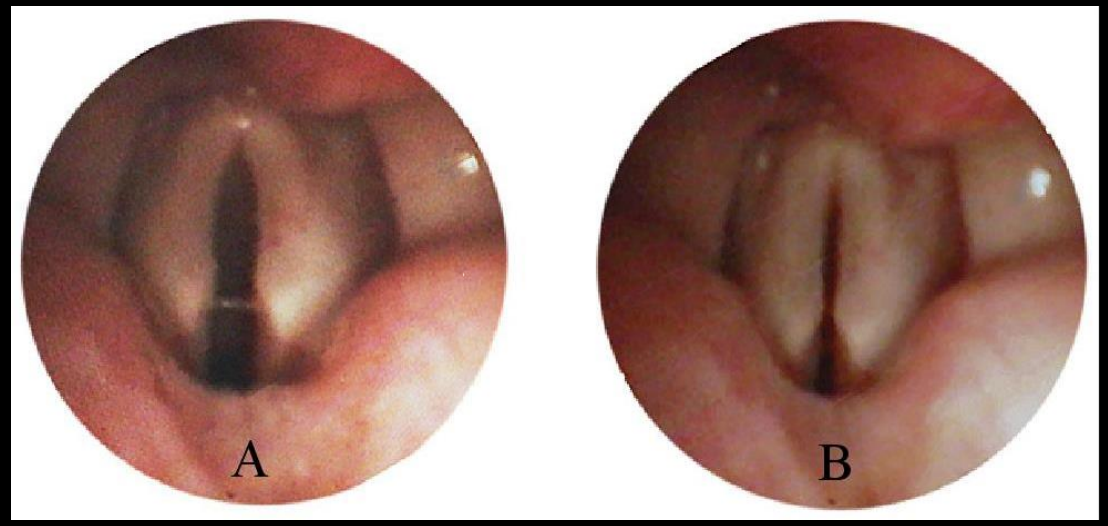
- Stridor is a harsh, high-pitched inspiratory sound due to a laryngeal narrowing, occurs during sleep, and is attributed to denervation of laryngeal muscles or to adduction dystonia of vocal cords.
- Treatment: CPAP or tracheostomy.

Inspiratory Ida
Stridor During Sleep

Multiple System Atrophy (MSA)

- The Most common pathologically confirmed misdiagnosis in patients who have undergone DBS:
  - little to no benefit
- Mean Survival 6-10 years

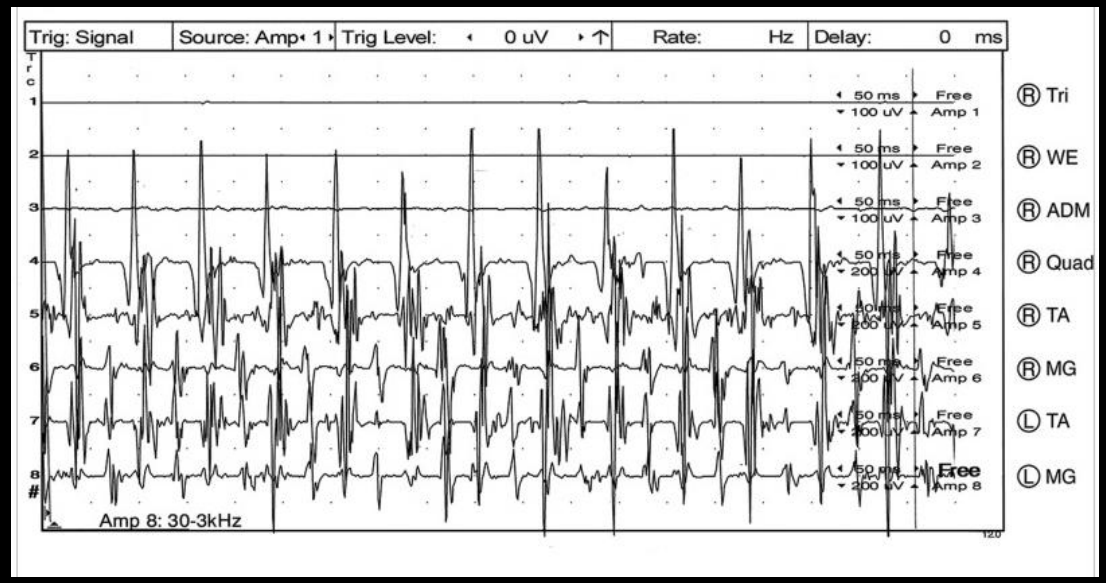
Early symptom - Stridor



Giannini, et., al., Neurology, 2016

Orthostatic Oliver
Orthostatic Tremor

- Shaky Leg Syndrome
- Legs give out
- Fear of falling
- Occurs while standing and disappears with walking or sitting
- High frequency tremor



Orthostatic Tremor: A 14 Hz, highly synchronized tremor present in the patient's legs as the patient stands.

Vidailhet, et. Al., J Clin Mov Disord., 2017

Limb-Shaking TIA

- AKA Asterixis
- Recurrent involuntary movements
- May resemble a bird flapping its wings
- May last 5 minutes
  - Metabolic diseases
  - Cerebral lesions
  - Manifestation of an acute stroke
- Misdiagnosed as seizure activity

Severe stenosis of the internal carotid artery

Rosenbaum, BMC Neurol, 2016; Javaid, Case Rep Neurol Med, 2016

Common Misinterpreted Sleep Behaviors in our Elderly Population
Conclusion

- Consider underlying neurodegenerative disease with “odd” behaviors in the elderly
- Medication side effects are often causing the “acute change”
- Medications may cause or resolve hallucinations
- Clock Tests may help to guide treatment strategies

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Thank You

What Questions Do You Have?

Please contact me if you find you have other questions.

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