THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Knowledge that will change your world

Parkinson Disease Non Motor Symptoms

ALAPTA Annual Conference

17 August 2019

Laura Lieb, CRNP, MPH

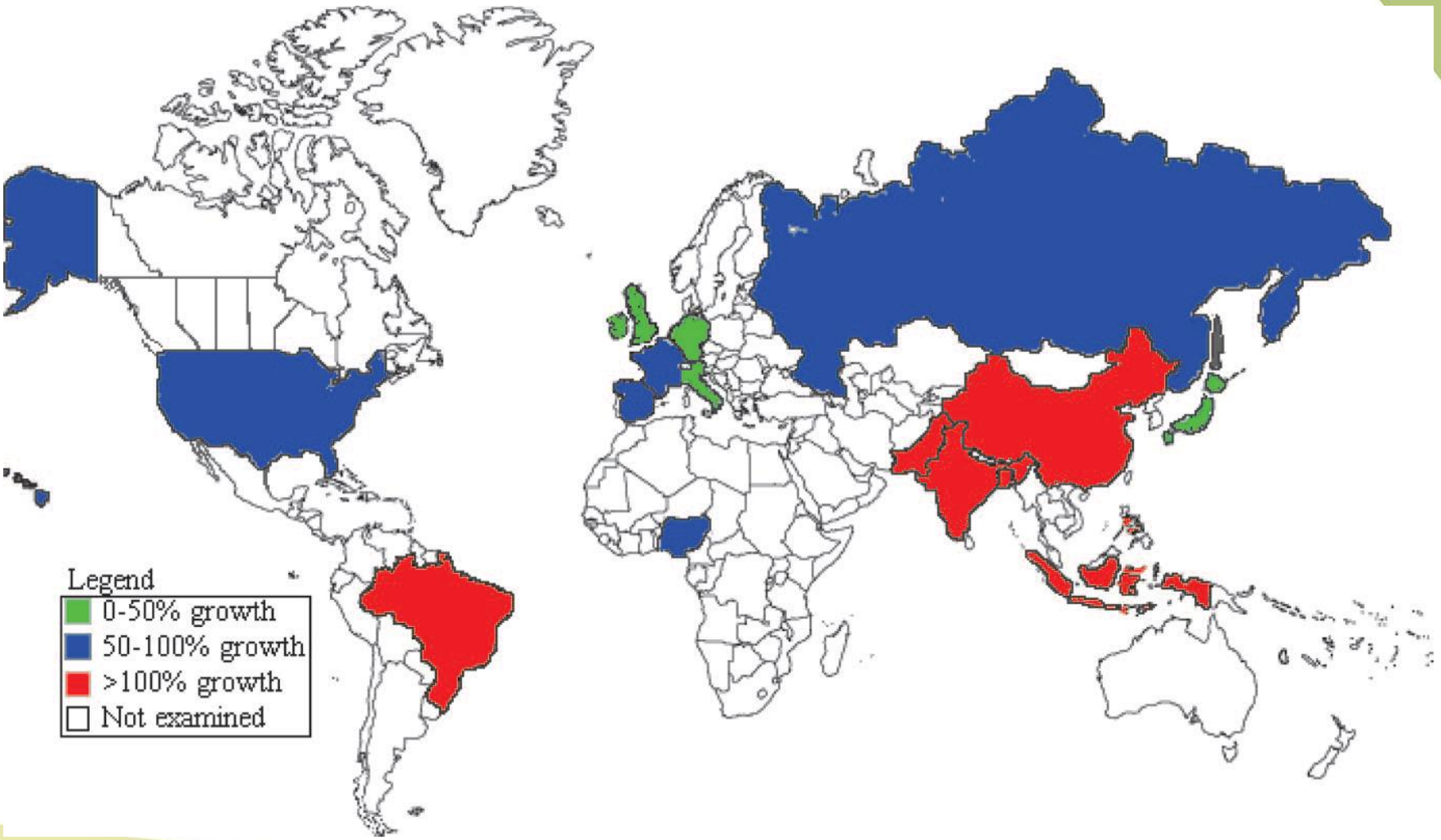
UAB Dept. of Neurology

Division of Movement Disorders

Objectives

- Provide an overview of non motor symptoms in Parkinson disease (PD)
- Review neurogenic orthostatic hypotension in PD
- Provide an understanding of common cognitive symptoms and visual and ocular symptoms in PD
- Hospitalization in PD

Projected Growth Rates 2005-2030



Dorsey et al, AAN, 2007

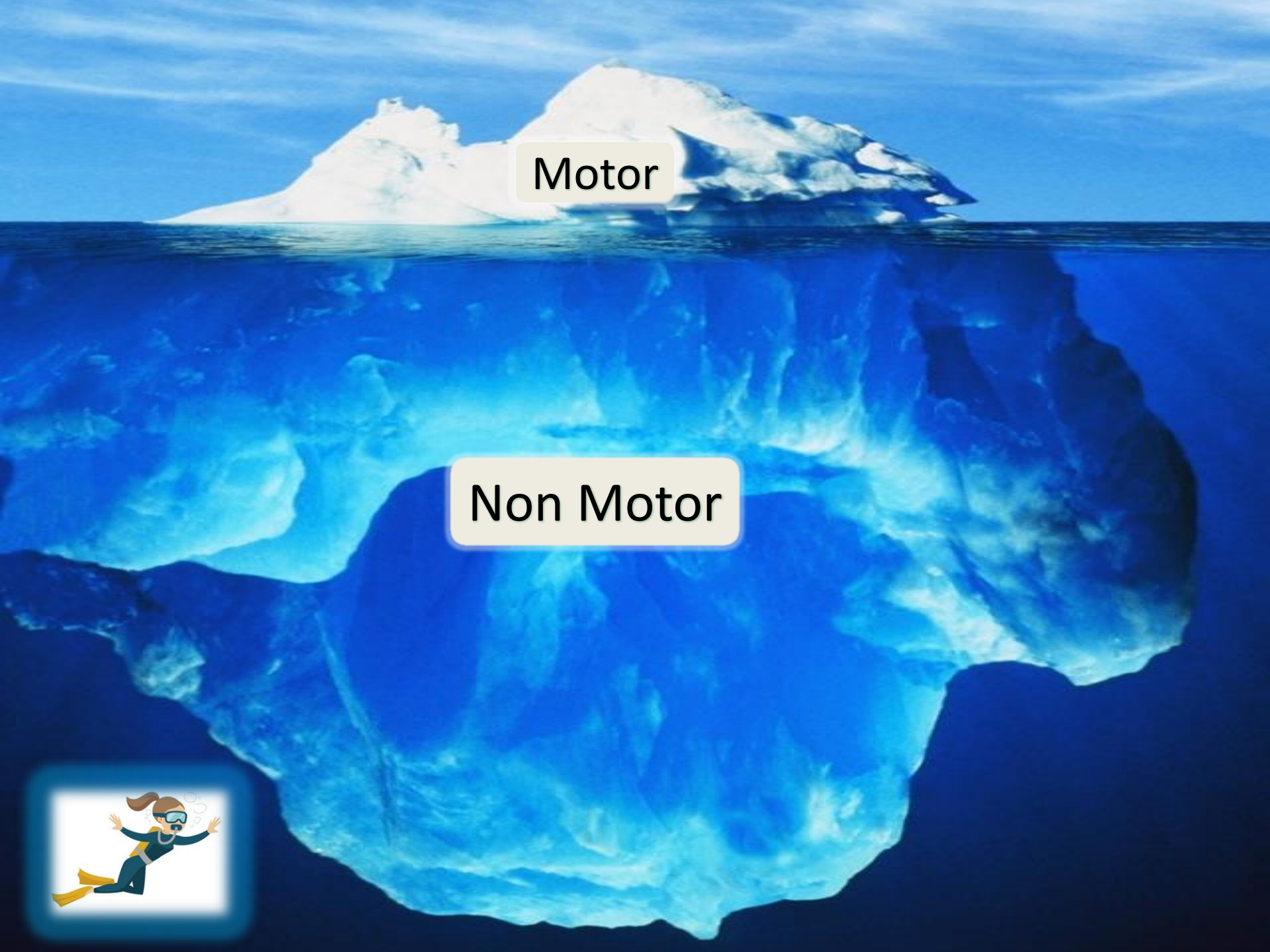
THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Knowledge that will change your world

Parkinson disease is not simply a movement disorder.

Non Motor Symptoms: Why Does It Matter?

- Major influence on quality of life
  - Even greater effect than motor symptoms
- Symptoms advance with progression of disease
- Increase disability and nursing home placement
- Significant effects on mobility and fall risk
- Multiple treatment options

Lim, et al. 2010


Motor
Non Motor

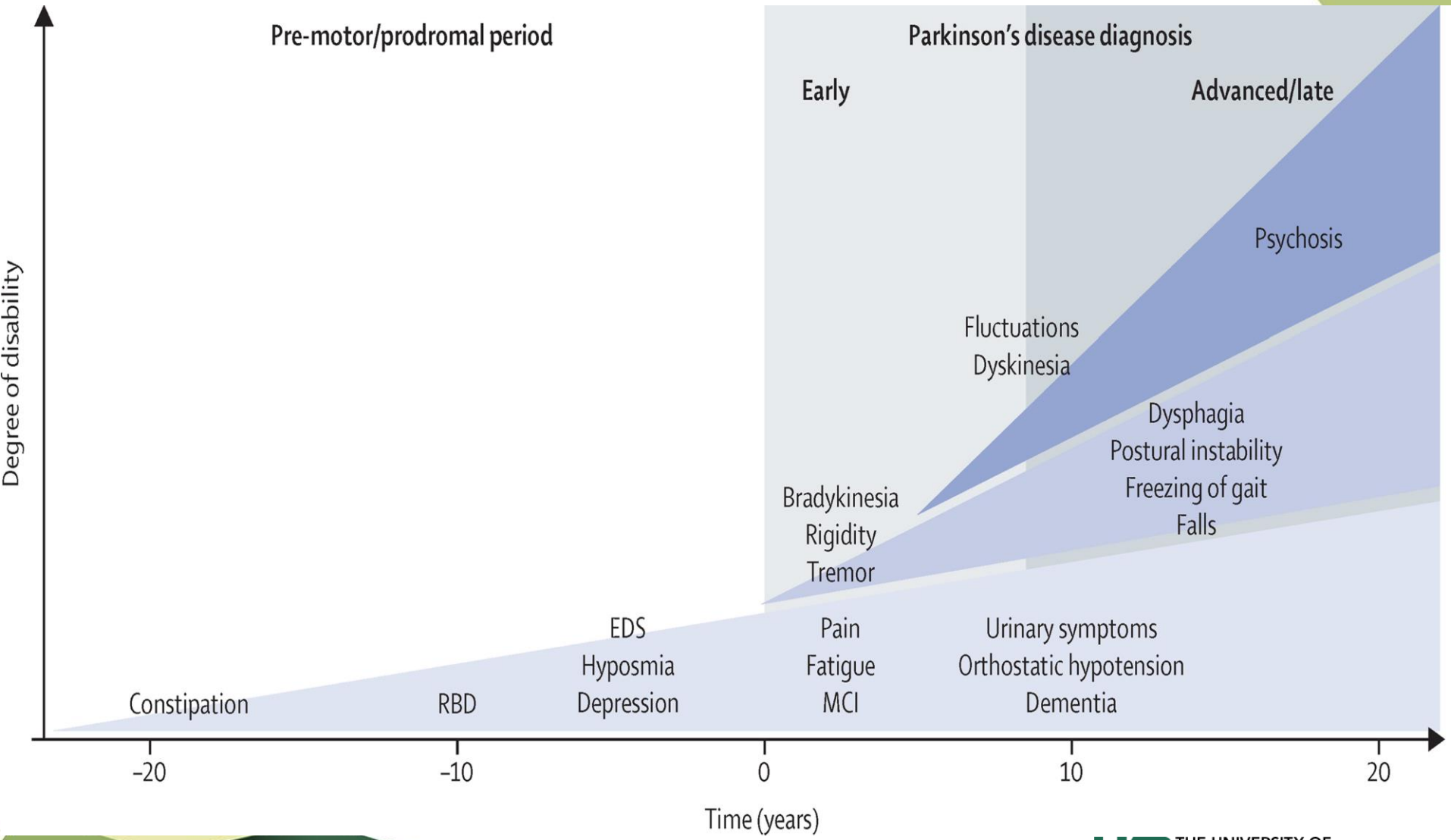
Non Motor Symptoms

- Anosmia
- Constipation
- REM Behavior Disorder
- Depression & Anxiety
- Apathy & Fatigue
- Impulse Control Disorders
- Hypophonia
- Dysphagia
- Drooling (Sialorrhea)
- Sleep disturbances

Non Motor Symptoms

- Orthostatic Hypotension
- Changes in vision
- Cognitive impairment
- Dementia
- Hallucinations/Delusions
- Seborrhea dermatitis
- Sweating dysfunction
- Urinary dysfunction
- Sexual dysfunction
- Pain
- Other

Parkinson Disease Progression: Review



Kalia & Lang, 2015

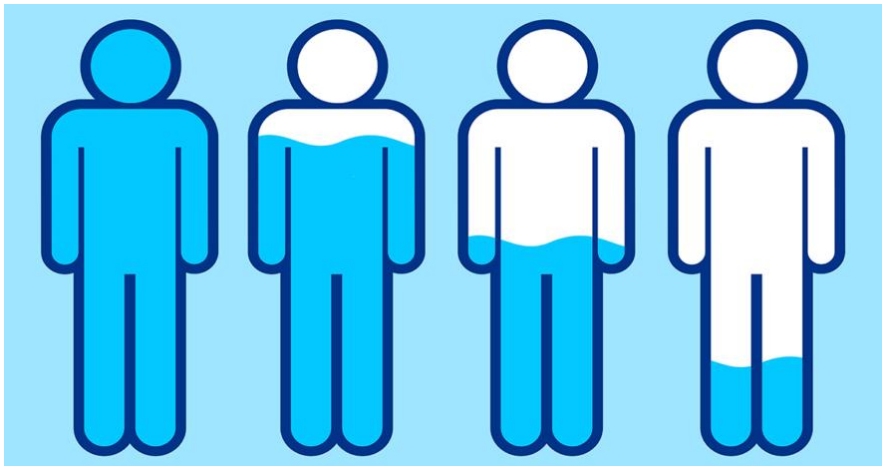
THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Knowledge that will change your world

Neurogenic Orthostatic Hypotension (NOH)

- Prevalence ~ 18-58%
- Drop of 20 mm Hg systolic b/p with position change
  - Or drop of 10 mm HG diastolic
- Heart rate - -> little or no change with NOH
- Sympathetic nervous system deficit
- Supine hypertension common (not diagnostic)

Clement et al., Journal of Medical Economics, 2017

NOH Exacerbating Factors



ANEMIA

PD Meds

Flomax

B/P Meds

Benzos

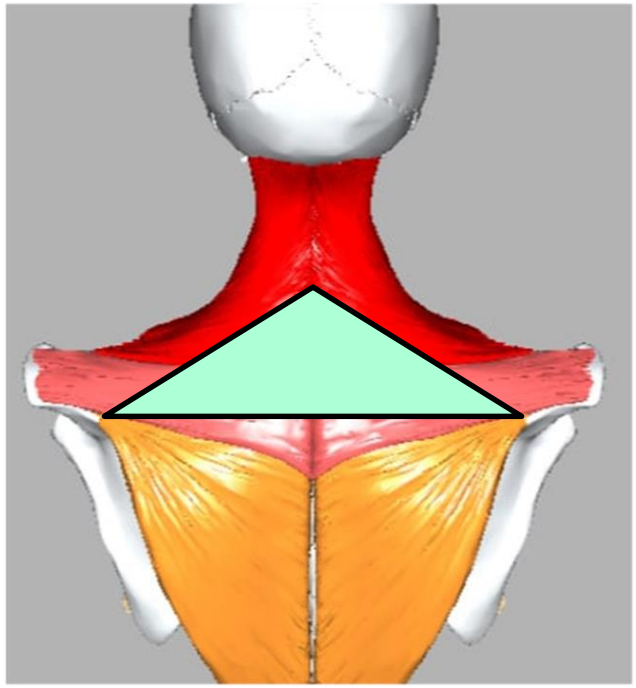
Diuretics

Hauser et al., Mov. Disord., 2015

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Knowledge that will change your world

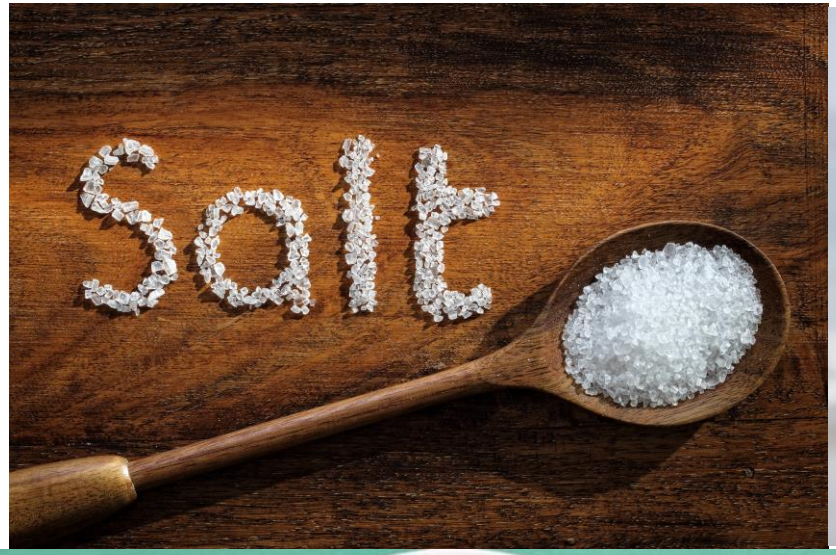
NOH: Signs and Symptoms

- Lightheaded & Dizzy
- Fatigue & Weakness
- Syncope
- Falls
- Coat hanger pain
- Impaired concentration
- Headache
- Blurry vision
- <u>Can be asymptomatic</u>



NOH Treatments

- Stop medications
- Hydration and sodium intake
- Exercise
- Elevate Entire HOB ~ 4 inches
- Slow transitions
- Compression
- Avoid hot baths
- Diet changes - smaller meals & avoid alcholol
- Medications: droxidopa, florinef, and midodrine


Salt

NOH Recommendations

- Assess OH Vitals
- Report to neurologist
- Encourage hydration and sodium intake
- Educate on exercises
  - Toe raising, thigh contraction, squats
- Slow transitions and adaptive strategies

Lancet Neurol. 2008 May; 7(5): 451–458.

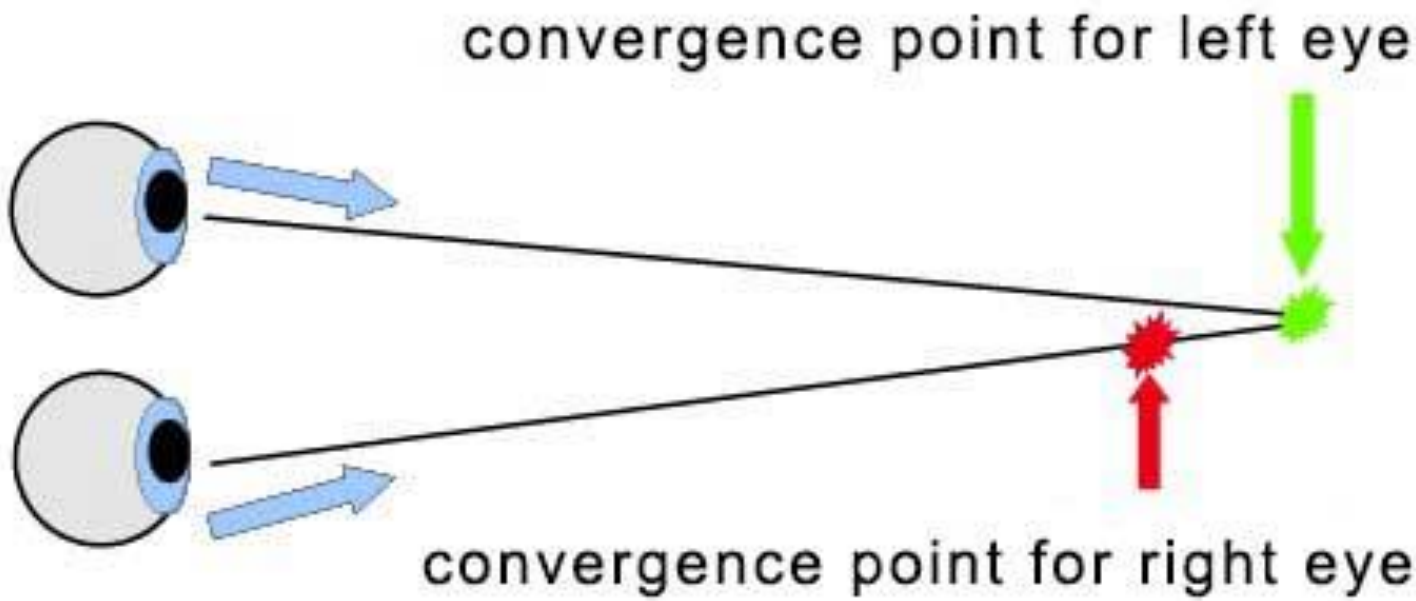
Ocular and Visual Symptoms in PD

- Keratoconjunctivitis sicca (Dry Eyes/Inflammation)
- Seborrheic Blepharitis
- Eyelid Apraxia and Blepharospasm
- Convergence Insufficiency = Double Vision
- Impaired Visual Acuity and Color Vision
- Impaired Contrast Sensitivity
- Visual Field Deficits
- Visuospatial impairments
- Visual illusions and hallucinations

Ocular and Visual Symptoms Significance

- Common in PD
- Reduced Quality of Life
- Loss of Independence
  - ADLs, IADLs, Reading, and Driving
- Reduce Social Activity
- Reduce Physical Activity
- Increase Risk of Falls and Injury

Cronin-Golomb, A., 2011



http://www.bateseyeexercises.com/visual_defects.php

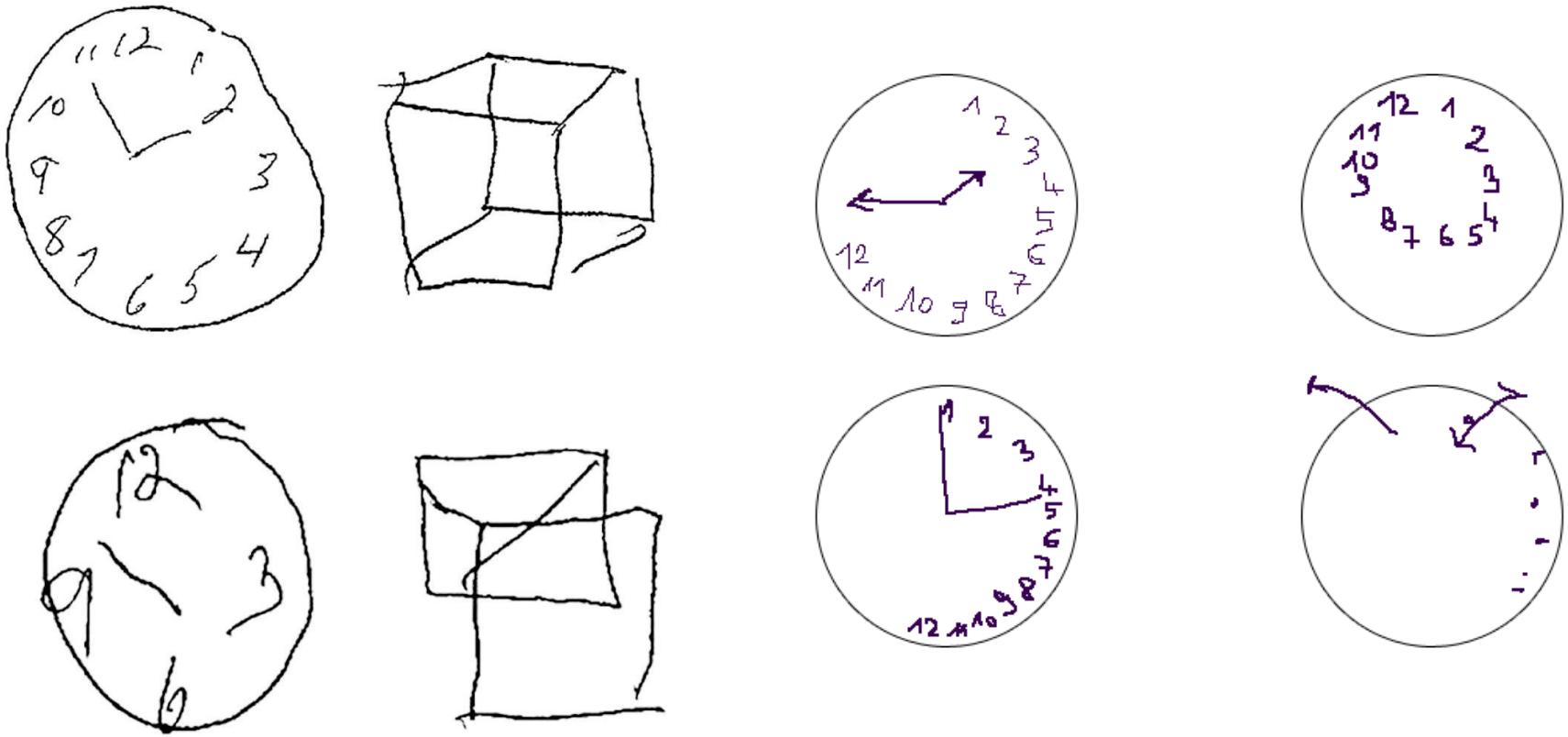
Double Vision

The consumption of soft drinks by American youth is increasing. National dietary surveys show that carbonated soft drink consumption more than doubled in youths aged 6 to 17 from about 5 ounces per day in 1977–78 to 12 ounces in 1994–98, the most recent years for which national data is available. Adolescent boys' soft drink consumption more than tripled during those years.

There are at least two negative results to this soft drink explosion. First, the use of soft drinks is likely related to the rise in childhood obesity. A variety of studies suggest that we don't eat fewer calories from other sources when we increase calories from beverages. If a child drinks 9 to 10 ounces of a soft drink, that's equivalent to almost 120 calories.

Mono Vision

Visuospatial impairment: Quick Assessment



Visuospatial Impairments

- Depth perception
- Motion perception
- Spatial perception
- Impaired facial recognition
- Atrophy of temporal-parietal cortical regions

Visual and Ocular Impairment Considerations

- Use of cueing techniques may be affected
  - Lasers, Tape, etc…
- Home modifications
  - Lighting, Furniture, Grab bars, etc…
- Driving performance
  - Turning early, hitting objects, and driving very slowly

Oculomotor disturbances Treatment

- Evaluation by ophthalmologist and optometrist
- Prisms and Eye Exercises
- Vision Rehabilitation Specialist
- Monocular Occlusion and Reading Stand
- Driving Evaluation
- PD Medications: Reduce Off Times

Hallucinations

- Perception of something without an external source
  - Visual
  - Auditory
  - Olfactory
  - Tactile
  - Sensory

Note: Illusions are misperceptions of an external source

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Knowledge that will change your world

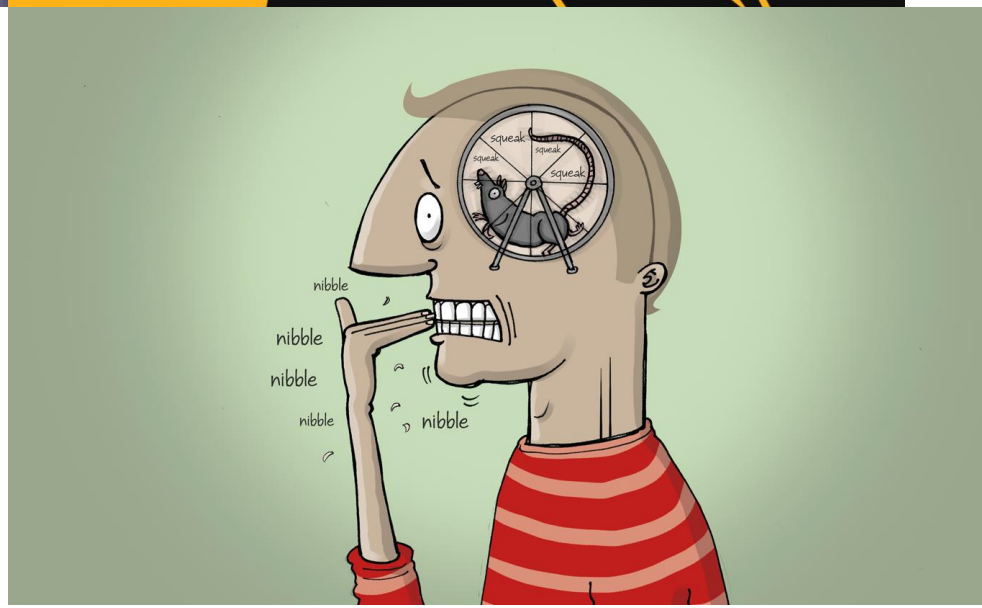
Cognitive Impairment in PD

- Affecting ~ 80% people with PD
- Symptoms progress with disease
- Multiple domains of cognition affected
  - Processing Speed (Bradyphrenia)
  - Executive Functions
  - Visuospatial (overlapping with vision changes)
  - Verbal memory

Cognitive Impairment is often Multifactorial

- PD including NOH and Motor Fluctuates
- Meds - anticholinergics and gabapentin
- Other morbidities - defuse white matter disease
- Sleep dysfunction - untreated OSA
- Depression and Anxiety
- Stress and Transitions - loss of a loved one
- Impaired Vision and Hearing

sleep
falling
asleep
condition
health
Poor
sleeping
conditions
difficulties
regular
medical
problem
anxiety
mental
may
problems
stress
including
disorder
Many
panic
like
staying
behaviours
depression
therapy
people
insomnia
disorders
schedule
associated
daytime
treatment
enough
trouble


squeak
squeak
squeak
squeak
nibble
nibble
nibble
nibble
nibble

Cognitive Impairment Treatments

- Treat - depression, anxiety, NOH, OSA, DM etc….
- Improve On Time (reduce motor fluctuates)
- Improve sleep quality and quantity
- Remove culprit meds (e.g. Amantadine & Cogentin)
- Check medication compliance
- Treat and prevent dehydration
- Add cholinesterase inhibitors
- Care partner support and education

Cognitive Impairment Approaches

- Setting realistic expectations
- 1 Step or Task at a Time
- Yes & No Questions
- Face the person
- Simplify - 1 task at a time and remove distractions
- Educate care partner, spouse, and family
  - Learn the therapy recommendations and exercises

Cognitive Impairment Approaches

- When is your best time of the day?
- What do they like?
- Utilize routines
- Allow for more time – please no rushing
- Speech therapy for cognitive training
- Tap into older memories (e.g. music)
- Be Creative - Think Outside the Box
  - Music? Games? Chocolate?

General Questions to Ask Patients and Family

- Best time of the day? “On Time”
- When are your medications working best?
- How long do your medication work?
- Do you maintain a regular med schedule?
- When are the dyskinesia worse?
- Do you have blurry or double vision?
- Symptoms of NOH
- When & where does the freezing of gait occur?

Hospitalization Complications

- Lack of PD Medications (very common)
  - Stopped abruptly
  - Not on time and Incorrect dose
- Contraindicated meds give (e.g. Phenergan & Haldol)
- Complications of immobility
- Psychosis triggered
- Lack of protocol for PD

Chou et al., AAN ,(2011)

YOUR DOCTOR WANTS YOU TO
GET YOUR MEDICATIONS ON TIME.
IN THE HOSPITAL
3 OUT OF 4
PEOPLE WITH
PARKINSON'S DON'T.
GET AWARE IN CARE.
PARKINSON
FOUNDATION

Ask Patients and Family

- What was your baseline before hospitalization?
- Are you getting your PD medications on time?
- Have you talked with your neurologist?
  - The neurologist may not realize they are hospitalized and need to review meds to avoid, the current PD meds, and provide instructions to the hospitalist/surgeon

Info To Know

- Sudden or acute change in your patient?
  - Dehydration
  - Infection (UTI)
  - Off state (pt will usually report)
  - Missed or delayed taking Parkinson's medication
  - New medication added (anti psychotic = block dopamine)
  - Change in Parkinson's medications
  - Stress, life changes, and chronic sleep problems

<u>Recommendation</u> – calling their physician

Arigatou! Gracias! Thank you!

- Patients and their families
- Erin Keefer, DPT
- Physical therapist that take my referrals

Got Questions?

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Knowledge that will change your world

Parkinson's Lingo

- PD - Parkinson disease
- On – medications working, PD symptoms well controlled
- Wearing off – medications are starting to lose benefit
- Off – PD symptoms are not well controlled
- Dyskinesia – involuntary movements that are often "dance" or "sway"-like, associated with excessive dopaminergic therapy (peak dose effect)
- NOH - Neurogenic Orthostatic Hypotension

References

- Allen NE, Sherrington C, Paul SS, Canning CG. Balance and falls in Parkinson's disease: a meta-analysis of the effect of exercise and motor training. Mov Disord 2011;26:1605–1615.

- Chou, K., Zamudio, J., Schmidt, P., Price, C., Parashos, S., Bloem, B., Lyons, K., . . . Okun, M. (2011). Hospitalization in Parkinson disease: A survey of National Parkinson Foundation Centers. Parkinsonism % Related Disorders, 17(6), 440-45.

- Cronin-Golomb, A., 2011. http://www.bu.edu/neuropsychology/files/2015/02/Cronin-Golomb-AD-chapter-Budson-2011.pdf

- Lim S., Fox SH., & Lang AE. Overview of the Extranigral Aspects of Parkinson Disease. *Arch Neurol.* 2009;66(2):167-172. doi:10.1001/archneurol.2008.561.

- Mahajan,A., Balakrishnan, P., Patel, A., Konstantinidis, I., Nistal, D., Annapureddy, N., . . . Sidiropoulos, C. (2016). Epidemiology of inpatient stay in Parkinson's disease in the United States: Insights from the Nationwide Inpatient Survey. Journal of Clinical Neuroscience, 31, 162-65, doi.org/10.1016/j.jocn.2016.03.005.

- Vernaleo, B.A. (2017, March) Cognitive problems in Parkinson's Disease. Retrieved from http://www.movementdisorders.org/MDS/Scientific-Issues-Committee-Blog/Cognitive-Problems-in-Parkinsons-Disease.htm