CAREGIVER SUMMIT

The PD You Can’t See: Dealing with Non-Motor Symptoms

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Sponsored by: ACADIA Pharmaceuticals
• Cognition VS Dementia
• Memory
• Executive Function
• Attention
• Bradyphrenia
• Visuospatial
• Language
• Hallucinations
• Sleep
• Exercise and cognitive benefits
**COGNITION**

- All mental abilities involved in **processing and using information/knowledge**
- Uses both **existing** information AND generates **new** knowledge

**DEMENTIA**

- A decline in mental ability severe enough to **interfere with daily life**.
- 2+ of the following must be significantly impaired for a dementia **diagnosis**: memory, communication/language, attention, reasoning/judgment, visual perception
- Associated changes to cognition, personality, emotion, language, motivation, psychology & behaviour
- Varying degrees of severity
DEMENTIA

VASCULAR  FRONTO-TEMPORAL  PARKINSON’S disease  ALZHEIMER’S disease  DEMENTIA with LEWY BODIES

MILD COGNITIVE impairment
WHAT CAUSES CHANGES IN COGNITION?

- Damage to brain cells interferes with the ability of brain cells to communicate with each other.
- The brain communicates by:
  - **Proteins** (bio molecule made of amino acids): power neurons (up/down regulate), build neurotransmitters \( \textit{\alpha} \text{synuclein maintains compartments in the neuron that releases NTs} \)
  - **Neurons**: power the message
  - **Neurotransmitters**: create the message \( \textit{dopamine (a NT) sends message of “attention” “coordination”} \)
  - **Receptors**: receive the message
MEMORY

- Encoding or registration: receiving, processing and combining of received information
- Storage: creation of a permanent record of encoded information
- Retrieval, recall or recollection: calling back the stored information in response to some cue for use in a process/activity

- In Parkinson’s
  - Sequencing
  - Internal memory search strategy (related to executive function?)
  - Memory distortions
EXECUTIVE FUNCTION

- Conductor of the brain’s orchestra
- Goal-directed behaviours: managing oneself and the resources necessary to achieve a goal (i.e. mental control, self-regulation)
  - Planning
  - Purposive action
  - Effective performance (self-monitoring)
  - Volition (problem solving, multi-talking)

- In Parkinson’s
  - Sequencing
  - Planning
  - Goal-directed behaviour
ATTENTION

- Focused: actively focus on one thing without being distracted by other stimuli
- Divided: the ability to respond to multi-tasking
- Sustained (vigilance): directed focus for the duration of a task

- **In Parkinson’s**
  - Difficulty in maintaining focus while ignoring competition stimuli (focused)
  - Multi-tasking difficulties may show up as gait dysfunction and falls
  - Vigilance may show up as drowsiness, staring into space, long daytime naps, disorganized speech
VISUOSPATIAL

- Ability to perceive, process and act on visual information
- Determine where things are in space – related to oneself or to another
  ie. *driving a car, trying to form a mental map of which turns to take to get home from store, navigating routes, following directions, estimating distances, timing*

- **In Parkinson’s**
  - Spatial working memory
  - Increased risk for falls
  - Navigation
LANGUAGE

- Complex! Includes: word finding, comprehension, speech production, facial expression

- In Parkinson’s
  - Word recall and naming (memory)
  - Bradyphrenia (slow thinking, executive dysfunction)
  - Articulation, volume, tone (motor impairments)
HALLUCINATIONS

- Hallucination = believes he/she sees or hears something that isn’t there
- Illusion = misleading perception of reality (misperception of something that is there)
- Delusion = self-deception; false believe despite strong evidence the believe is false

- Occurs in 25% in Parkinson’s disease (with/without dementia)
- Associated with: cognitive decline, daytime somnolence, disease duration, apathy, sleep, anxiety, medication side effect

- In Parkinson’s
  - 90% visual
  - Liliputian
SLEEP

- Hypocretin cell loss (38-45% decline) in PD impacts sleep/wakeful cycles
- Predate Parkinson’s diagnosis? (33-60% of cases)
- Suggestive item in DLB diagnosis (50-80% of cases)

In Parkinson’s
- Sleep-wake cycle disturbances
- REM sleep behaviour disorder
- Restless Leg Syndrome
- Daytime sleepiness
EXERCISE AND BRAIN HEALTH

- Improved dopamine “connections”
- Decreased stress and inflammation in basal ganglia
- BDNF and GDNF neurotrophic factor expression
- Executive function, spatial learning and working memory

TYPES
- Vigorous exercise
- Aerobic exercise
- Dual-task (physical + cognitively challenging)
- Mental exercise (brain games, learning)
DISCUSSION QUESTIONS

• What challenges are you facing?
• What are the positives in your experience?
• What tips or tricks do you have to share?
• What questions do you have about management or resources?
COMMUNICATION EXERCISE

- Sit comfortable with a partner. Decide who will be first speaker.
- Close your eyes and take a breath.
- Speaker #1 begin talking and allow a stream of consciousness to flow. Use the first person “I notice… I am aware of … I need… I recognize… I am experiencing”
- Listener #1 listens without speaking. There is no need to process, interrupt, problem solve or analyze.
- Switch roles.
- Speaker #2 focus on your own experience rather than reacting to the content of the first person’s sharing. Listener #2, listen.