Neuropsychology and Parkinson’s Disease

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Parkinson’s disease and cognition

- Parkinson’s disease is not just a disorder of movement
- The same circuits associated with motor functioning can also lead to non-motor symptoms
- Around 25% of individuals with newly diagnosed PD have cognitive concerns
- This may increase to 50% over time
Early cognitive changes

- Cognitive difficulties usually limited to one or two cognitive domains. These include:
  - Executive functioning (problem solving, planning, organization, decision-making, etc.)
  - Attention
  - Slowed thinking
  - Word finding problems
  - Learning and retrieval
  - Spatial abilities
Cognition later in the disease

- Longer duration of the disease may mean increase in cognitive problems, including memory
- Memory and drawing abilities decline slowly in people with PD without dementia
- When cognitive problems occur early, there may be a more rapid decline
- Visual hallucinations are associated with a faster rate of cognitive decline
Risk Factors for cognitive decline

- Older age
- Hallucinations
- Male gender
- Increased symmetry of parkinsonism
- Speech and swallowing problems
- Gastroenterological/urological disorders
- Severe motor symptoms
- Depression

Uc et al., 2009
Mental Health Contributions
(other non-motor symptoms)

- Depressed mood
  - may occur in 40-70% of people with PD, may occur in advance of motor symptoms

- Anxiety
  - May occur in 40% of people with PD, often together with depression
    - May be worse as medications wear off

- Apathy
Mental Health Contributions

• Impulse control problems

• Mania, psychosis

• Hallucinations
Other contributors to cognitive and mental health changes

• Medications
• Sleep problems
• Fatigue
• Stress
Exercise, Cognition and PD

• Studies have shown improvements in executive functioning and processing speed with exercise
• Exercise also has a positive effect on mood
• Low-intensity passive aerobic cycling and moderate-intensity aerobic and anabolic exercise improve executive functioning
• Yoga, t’ai chi, boxing, Tango, Nordic Walking, biking, Wii Fit

(e.g., Murray et al., 2014)
Treatment strategies

• Talk to your doctor about whether any medications may be appropriate
• Exercise regularly
• Nutrition
• Keep active physically and mentally
• Address any underlying depression or psychological symptoms, or sleep disorders
• Consider working with a health psychologist
• Speech therapy or cognitive rehabilitation
Strategies

- Carry a small notepad
- Written reminders
- Checklists
- Calendars and alarms on smart phones
Strategies

- Organizational strategies: complete one task before beginning another
- Work in an environment that is free from distractions
- Ask for assistance breaking down larger tasks into smaller, more manageable parts
Neuropsychological Evaluation

- Focuses on brain functioning
- Detailed, objective assessment of abilities
- Patterns of strengths and weaknesses used for diagnosis and treatment planning
Neuropsychological Evaluation

• Establishes a baseline of functioning, so that direct comparisons can be made later
• Assists in determining if other factors such as depression or stress are present, which could contribute to cognitive changes
• Assists in treatment planning, including referral to speech therapy or cognitive rehabilitation, provides information to your neurologist which helps with medication management
Conclusions

• Cognitive and mood changes are not uncommon in Parkinson’s disease, but may be mild
• Problems with slowed thinking, attention, executive functioning, visual spatial abilities, and learning and memory are the most common symptoms
• Common concerns such as depressed mood, sleep problems, and medications should be addressed
• Speak with your physician, who may recommend a neuropsychological evaluation, psychotherapy, or consultation with psychiatry