PD ExpertBriefing:
Cognition and PD: What You’ve Always Wanted to Know But Were Too Afraid to Ask

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Tuesday, March 22, 2011 at 1:00 PM ET
“I Thought PD is a Movement Disorder”

- Parkinson’s disease (PD) is a movement disorder
- BUT
- PD *can* also produce non-motor problems
  - Cognition
  - Emotion
  - Sleep
  - Speech
  - Dysautonomia (constipation, blood pressure, sweating)
What is Cognition?

• Processes by which we “know” about, and apply knowledge to the world around us
• Memory and association or learning
• “Executive functions”: concept formation and problem solving, planning & monitoring of actions
• Attention
• Language
• Imagery and spatial processes
What is Dementia?

- Dementia – a broad label
- Does NOT necessarily mean the person has Alzheimer’s disease
- Involves decline in multiple mental abilities that leads to
  - decline in functioning (home and work)
  - changes in social function
How Common are Problems with Mental Abilities in Parkinson’s Disease?

• Early changes neglected until recently
• About 25-40% of persons with PD have cognitive changes detectable **by careful testing** at time of diagnosis
• Mild changes may not be noticeable to self or others
• About 30% of persons with PD have more severe problems or dementia
Changes in Cognition and Mild Cognitive Impairment
Cognitive Problems Sometimes Seen in Early Parkinson’s Disease

• Coming up with words
• Slowness in thinking
• Remembering
  – Learning and retrieving information
  – Forgetting intentions
Cognitive Problems Sometimes Seen in Early Parkinson’s Disease

• “Executive functions”
  – planning
  – anticipating consequences
  – making decisions
  – problem-solving

• Attention
A Transition in Thinking About PD Cognitive Impairment (From Tröster, 2011)
Possible Advantages of MCI Diagnosis in PD

- Early detection and treatment of cognitive decline, and consequent enhancement of functioning
- Evaluation of dementia with Lewy bodies (DLB)/Parkinson’s disease with dementia (PDD) distinction
- Greater precision in identifying course of cognitive decline, risk factors for these declines, and underlying mechanisms
MCI Criteria for Parkinson’s Disease

• Unclear how MCI should be defined in PD
• Movement Disorder Society has Task Force to define diagnostic criteria
• Tröster has proposed research criteria
  – Subjective report or observation by health professional of cognitive problem
  – Cognitive decline occurs at time of or after motor symptom onset
  – Intact, perhaps more effortful, day-to-day functioning (e.g., with financial management)
  – Deficit or decline on cognitive testing
GEECH

OH, YOU CAME BACK...

DO YOU REMEMBER THAT JACKET?

YOU DECIDED ON THE BLUE ONE YOU TRIED ON?

NO, I FORGOT THE BROWN ONE I WORE IN, AND MY CAR KEYS ARE IN THE POCKET.
Mild Cognitive Impairment (MCI) in Parkinson’s Disease

- MCI is present in 15% to 62% of PD, with most reports in the 20%-30% range
- In PD, MCI single domain is more common than multiple domain
- Executive/attention seems most common domain affected in PD
Mild Cognitive Impairment (MCI) in Parkinson’s Disease

- Executive/attention, perceptual, and to lesser extent, memory impairments are associated with higher risk of dementia
Causes of Cognitive Changes in Early Parkinson’s Disease

• Changes in brain chemicals
  – Dopamine: working memory, executive functions
  – Acetylcholine: episodic memory and executive functions
  – Norepinephrine: attention and arousal
Acetylcholinesterase Activity Reduction in PD, PDD, DLB
(Klein et al, Neurology, 2010)
Causes of Cognitive Changes in Early Parkinson’s Disease

- Medical illness or other brain disease
- Depression and Nervousness
- “Age”
- Medication/Surgery
Medications and Cognition

• Dopamine replacement
  – little effect
  – mild, transient benefit on working memory and planning early in disease?
  – the overdose hypothesis?
Medications and Cognition

- Anticholinergic drugs, e.g., trihexyphenidyl (for tremor) can affect cognition
- MAO-B inhibitor selegiline’s protective effect against mental decline questioned; no convincing evidence of major cognitive impact of rasagiline in humans
Effects of Surgical Treatments

- Bilateral ablation (e.g., pallidotomy) can negatively affect executive function, language and memory
- Deep brain stimulation appears to be relatively safe, but changes in word production are common, and occasionally changes in memory and executive function occur
Treating Cognitive Dysfunction in Parkinson’s Disease
Cholinesterase Inhibitors and Other Agents

• Can slow progression of cognitive decline and improve psychosis
• Donepezil
• Rivastigmine (FDA approved)
• Galantamine
• Other agents: methylphenidate, modafinil (limited evidence)
• Usefulness of memantine (glutamate NMDA antagonist) questioned in PDD
Merry Christmas, Darling!

Thank you, dear...

May I help you, m'am?

Ugh, give me a minute...

How to Improve Your Memory

By Whatchazname

I'II return this book tomorrow
Helping the Parkinsonian With Cognitive Changes

- Prompt recognition rather than expecting recall
- Cue attention
- Cue word with initial sound of word
Helping the Parkinsonian With Cognitive Changes

- Medication dispenser
- Alarm/Personal Digital Assistant
- Verbalize sequence of actions--write the sequence down
- Do NOT finish sentences for the person with PD
- Pacing conversation by questioning
- Photos on cell phones for face-name association
Helping the Parkinsonian With Cognitive Changes

- Practice new memory strategies, e.g. bizarre images
- Write lists
- Put things in a routine place
- Reminder notes in prominent places
When and How to Seek Help for Cognitive Problems
What to Do When One Notices Mental (or Emotional) Problems

• Discuss with your doctor
• Seek referral, if needed, to psychiatrist, neuropsychologist, speech therapist, occupational therapist
• Try not to tell yourself...
  – “I will get over it”
  – “It’s too mild to worry about”
  – “It must be Alzheimer’s”
  – “I must be crazy”
When to Seek Professional Help

• If changes are bothersome to the patient
• If they distress the family--arguing is a sign
• Changes in ability to carry out day-to-day tasks
• Problems at work keeping up with tasks
When to Seek Professional Help

- Sudden change in mental functions
- Certain treatments (for example, deep brain stimulation) are being considered
- If the person is depressed or withdraws
- If a person experiences hallucinations
Questions and Answers
Closing Remarks

Robin Elliott
Executive Director
Parkinson’s Disease Foundation