

## Impaired thinking and Dementia

Over time, more than 50% of persons with PD may experience some degree of impaired thinking. These alterations in thinking ability fall on a broad spectrum from mild cognitive impairment to severe dementia. Mild cognitive impairment occurring early in the course of illness may be a nuisance to the person with PD and his or her loved ones, especially if he or she is still working, but it usually will not affect routine activities of daily living. Progression to dementia is the greatest worry for many people with PD, as this usually implies a significant and perhaps permanent compromise in lifestyle and quality of life. While the majority of people with PD will develop some degree of cognitive impairment, many will not progress to severe disability.

People with PD may experience difficulty with:

- Speed of mental processing
- Attention/concentration — losing their train of thought in conversation
- Problem solving, decision making, multitasking and planning
- Short-term memory
- Language production

In most cases, the impaired thinking associated with PD is not Alzheimer's disease, so the severity of the cognitive or thinking deficits and the effect of those deficits on day-to-day functioning are not as disabling.

Dementia in Parkinson's disease (PDD) occurs when the specific deficits inattention/concentration, problem solving and memory are severe enough to interfere with the person's ability to function appropriately at work and/or in social situations. PDD is differentiated from other forms of dementia by additional distinguishing characteristics such as fluctuating awareness and attention span, visual hallucinations and altered spatial orientation. Fluctuating awareness refers to periods of mental clarity alternating with periods of confusion, distractibility, sleepiness and psychosis (usually visual hallucinations).



A closely related parkinsonian disorder — dementia with Lewy bodies (DLB) — is similar but different from PDD in important ways. The main difference in making the diagnosis is the timing of significant impairments in thinking in relation to the motor symptoms. Thus, if cognitive impairment begins before or within one year of the motor symptoms of PD, the diagnosis is DLB; if cognitive impairment follows the appearance of motor parkinsonian symptoms by more than one year, the diagnosis can be classified as PDD.

Evaluation for change in cognitive function in persons with PD should be part of a complete medical workup for other causes of impaired thinking, all of which may be treatable. If the change in thinking ability is sudden, severe, and accompanied by significant alteration in consciousness, an underlying cause separate from PD should be sought, such as infection (usually of lungs or bladder), vitamin depletion, dehydration, thyroid disease, intoxication by drugs, constipation, sleep deprivation or head injury (from tendency to fall).

A similar evaluation should be done if the change is more gradual and chronic, but the likelihood of finding a reversible cause of dementia is less than in the acute setting. Many of the antiPD medications and other drugs (for example, strong pain killers like narcotics) can cause confusion mimicking dementia, particularly as the person with PD ages. A careful evaluation of current medications is always important, paying particular attention to the anticholinergics, amantadine and dopamine agonists.

Medications that may improve thinking ability in people with PD are available. Originally approved by the FDA for the treatment of memory disorder in Alzheimer's disease, one of these — rivastigmine or Exelon® — is also approved for treating cognitive impairment in PD.



**Acetylcholinesterase inhibitors** Donepezil (Aricept®), rivastigmine (Exelon®) and galantamine (Razadyne®) are the medications most frequently prescribed to address symptoms of cognitive impairment in PD. Originally approved by the FDA for the treatment of Alzheimer's disease, donepezil and rivastigmine have recently been shown to be well tolerated and effective for people with PD, though benefits are modest. Rivastigmine was approved by the FDA in 2006 for treatment of dementia in PD. This group of drugs is usually well tolerated by persons with PD, although tremor can become more pronounced in some people.

**Glutamate antagonists** Memantine (Namenda®) is approved for moderate to severe Alzheimer's disease in the U.S. It may share some properties with amantadine, and some physicians and healthcare providers have proposed it may help both motor and cognitive symptoms in PD by blocking the brain's receptors activated by the neurotransmitter glutamate. Glutamate is a natural brain chemical essential for normal function but in PD it can worsen some of the symptoms.

**Other medications** Stimulant medications, such as methylphenidate (Ritalin®), and medications for excessive daytime sleepiness, such as modafinil (Provigil®) are occasionally used for decreasing fatigue and improving alertness in PD. They are not specifically indicated for cognitive impairment.

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