

Parkinson's Disease In the Elderly

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An 82 year old woman was admitted to a rehabilitation hospital after sustaining a pelvic fracture. She had a past history of osteoporosis and chronic lower back pain treated with epidural steroids. For the past two years she had had several falls associated with fractures. She also reported drooling, difficulties swallowing, gait shuffling and freezing, and tremor in the left hand, more at rest than with action. She had no cognitive impairment. She was started on a small dose of levodopa carbidopa 25/100, a half three times a day. She responded very well, stopped drooling, and had improvement in swallowing, gait, and tremor. However, her balance remained impaired and she continued to need a walker.

This case exemplifies some of the challenges in diagnosing and treating elderly patients with **Parkinson's Disease (PD)**: 1) concurrent medical conditions, such as arthritis, can affect mobility, and symptoms can overlap with the symptoms of PD, thus delaying the diagnosis; 2) although treatment with levodopa is beneficial, it does not eliminate gait and balance problems, which are major causes of morbidity.

Age remains the single most important risk factor in PD. Although the average age of onset of PD is around 60, the incidence rates consistently increase through age 85.¹ Aging does appear to directly influence the clinical expression of PD, and late onset PD patients offer special challenges because of polypharmacy, multiple pathology, and coexisting cognitive problems. This article will review the specific aspects of the clinical presentation, differential diagnosis and treatment of PD and its complications in the elderly population.

CLINICAL PRESENTATION

The diagnosis of PD is based on the history and the clinical examination. It requires the presence of two of the following: rest tremor, bradykinesia or ri-

gidity. Asymmetry of physical findings is important to support the diagnosis, as is a good response to levodopa.

Several clinical features help to distinguish idiopathic PD from other causes of parkinsonism. The presence of early falls, a poor response to levodopa, symmetry of signs at onset, or significant autonomic dysfunction should raise the suspicion that the patient may not have idiopathic PD.

In addition, significant cognitive decline and hallucinations, within one year of onset of the parkinsonian signs is suggestive of a diagnosis of dementia with Lewy Bodies. Concomitant PD and **Alzheimer Disease (AD)** are also possible in this age group. The diagnosis can be difficult, because some patients with AD have parkinsonian features. The presence of an asymmetric rest tremor, and improvement of the motor signs with levodopa lend support to a diagnosis of PD.

It is always necessary to review all the medications taken by the patient, because many have extrapyramidal side effects. Potential culprits include atypical neuroleptics (i.e. risperidone), antiemetics (i.e. metoclopramide), some antidepressants (i.e. fluoxetine) and some antiepileptics (i.e. valproic acid). Other conditions to exclude, especially in the elderly, are cerebrovascular disease and normal pressure hydrocephalus which usually present as a gait disorder or "lower body parkinsonism."

Patients with late onset PD progress at a greater rate and are more cognitively impaired than those with early onset disease. They also have more bradykinesia and postural instability³. Lack of tremor, male sex, and associated comorbidities are also associated with a more rapid rate of progression².

NON-MOTOR SYMPTOMS

Non-motor symptoms are increasingly recognized as an intrinsic feature of PD. Their prevalence is high: A survey found that 88% of PD patients had at least one non-motor symptom, and 11% had five.⁴ With improvement in the treatment of PD motor symptoms, non-motor symptoms, such as dementia and depression, have become an important cause of dis-

ability.⁵ They are however under recognized because their symptoms can overlap with the symptoms of PD.

Non-motor symptoms affect several domains: neuropsychiatric, autonomic, sensory, sleep, and dermatologic. Dementia, depression and autonomic symptoms are often the most problematic in elderly PD patients.

DEMENTIA

The prevalence of dementia in PD varies between 10 and 44% depending on the diagnostic criteria used and the nature of the population studied. The risk increases with age, with one study finding that 65% of PD patients over the age of 85 were demented.⁶ Risk factors include older age at onset, and initial manifestations of hypokinesia and rigidity.⁷ The dementia in PD usually does not appear at the onset of the disease. It is characterized by impaired executive function, visuospatial abnormalities, impaired memory, and language deficits.⁸ In elderly patients, superimposed cerebrovascular disease can contribute to cognitive problems. Dementia is a major factor in the management of PD, limiting the drug therapy that can be used, and leading to earlier nursing home placement and decreased survival.²

DEPRESSION

Around 40% of subjects will have depression.⁹ Although there may be a psychological response to living with a progressive neurological disease, there is evidence that depression in PD is related to the underlying pathology of the disease.

There is overlap between the symptoms of depression and those of PD which can make the diagnosis challenging. The nature of the depression in PD is more characterized by pessimism, hopelessness and poor motivation, with less feeling of guilt and self blame than in depressed elderly subjects without PD. Psychotic features are rare.¹⁰

AUTONOMIC DYSFUNCTION

Symptoms of autonomic dysfunction become more prominent as PD progresses. They also increase with age and medication use.¹¹ They include bladder dysfunction, constipation, orthostatic hypotension, abnormal sweating and sexual dysfunction.

In addition, age itself affects autonomic function, as do concurrent diseases such as diabetes and hypertension, and medications, including some used to treat PD.

Orthostatic hypotension

Falls in **blood pressure (BP)** occur particularly when getting up in the morning, or after meals. They manifest as dizziness when the patient stands, but can also present as fatigue or episodes of confusion. Critical review of all prescribed medications is necessary but sometimes specific treatment such as fludrocortisone or proamatine must be instituted.

Bladder symptoms

Symptoms of urgency, frequency, nocturia, and incontinence are common in advanced PD. They result from detrusor hyperreflexia with or without detrusor/sphincter dyssynergia. In addition, they can be complicated by prostatic hypertrophy in males. Unfortunately medications for detrusor hyperreflexia are anticholinergic and can exacerbate confusion in elderly PD patients. Their risks and benefits must be carefully weighed.

Constipation

Constipation is very common in PD, because of a combination of autonomic dysfunction with delayed transit time, and immobility, drug therapy, poor diet and lack of appropriate hydration. An aggressive bowel regimen may be necessary to avoid impaction.

TREATMENT

Treatment must be individualized to each patient's needs, and the functional and cognitive status. Symptomatic therapy is introduced when the patient is functionally disabled. Levodopa/carbidopa is still the most effective medication for the motor symptoms of PD, and is better tolerated than Dopamine Agonists, amantadine or anticholinergics in elderly patients. It is initiated at a low dose, and increased slowly to minimize side effects. The optimal dose is the lowest one that will maintain adequate function. As the symptoms of PD progress, the dosage of the medication will need to be adjusted. However certain symptoms such as gait freezing, falls, hypophonia, and dysphagia do not respond well to drug treatment, and in these cases physical therapy and speech therapy may be helpful.^{12, 13}

The treatment of the non-motor symptoms of PD must be addressed specifically and separately from the treatment of the motor symptoms. The only medication approved for the treatment of PD dementia is Rivastigmine.¹⁴ There is no medication specifically approved for the treatment of depression, bladder or sexual dysfunction, constipation, or orthostatic hypotension in PD. For any treatment being considered, the clinician must weigh the potential benefit versus the risk of side effects.

Patients with late onset PD progress at a greater rate and are more cognitively impaired than those with early onset disease.

CONCLUSION

Elderly PD patients have more gait and balance difficulties, more depression, cognitive problems, and autonomic dysfunction, in addition to concurrent diseases such as cardiac and cerebrovascular disease. Drug therapy can be limited by neuropsychiatric side effects, and has marginal benefit for gait, balance, and swallowing difficulties. In this situation a non-medical approach involving physical and speech therapies becomes an important part of the management. A dietitian can also be involved to recommend strategies to maintain weight, and an occupational therapist can evaluate the home environment to improve safety. As the disease progresses, it may become increasingly difficult for patients to go to a specialty clinic. The primary care provider then becomes more involved in the management of the patient but must have access to consultation with the patient's specialist if necessary. The care of patients with advanced PD is complicated by the fact that the caregiver, usually a spouse, is also likely to be elderly and to suffer from a chronic illness.

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