Blood Work and Neuroimaging

18. Blood work and neuroimaging have not been found to be helpful in the diagnosis of Parkinson disease or to assess progression, and they are not recommended by Canadian guidelines.[17] However, if secondary parkinsonism is clinically suspected (particularly vascular parkinsonism) and if detection of silent strokes would change management for a patient, or if there are neurological findings not typical of Parkinson disease, it may be reasonable to obtain blood work and neuroimaging such as CT or MRI.[17,45]

DIAGNOSIS

19. The International Parkinson and Movement Disorder Society has suggested a 2-step approach to diagnosing Parkinson disease in a primary care setting (Box 2). The first step involves diagnosing parkinsonism; the second step involves differentiating potential causes of the parkinsonism, which includes a trial of dopaminergic therapy.[20] The accuracy of these criteria when compared against expert diagnosis was 92.6% (sensitivity = 94.5% and specificity = 88.5%).[20]

Box 2. Two-Step Diagnostic Approach in the Primary Care Setting[20,46]

1. Diagnose parkinsonism.
   Parkinsonism is defined as the presence of (1) bradykinesia and (2) either rest tremor or rigidity or both.
2. Assess likelihood that parkinsonism is attributable to Parkinson disease by reviewing clinical features, evaluating for supportive features, looking for findings that make the diagnosis of Parkinson disease less likely, and considering differential diagnoses. A diagnosis of Parkinson disease is supported if 2 more of the following are present:
   - Marked improvement in motor symptoms (especially bradykinesia) in response to dopaminergic therapy.
   - Clear symptom improvement with increasing doses and clear symptom worsening with decreasing doses.
   - Motor fluctuations that demark periods of medication efficacy and when the dose is wearing off:
     - Levodopa-induced dyskinesia: patients may experience chorea or dystonia on the side of the body where symptoms are present. This aids in the differential diagnosis as patients without Parkinson disease will not experience levodopa-induced dyskinesia.
     - Emergence of unilateral rest tremor prior to subsequent doses.

Refer to Info point 22 and Box 3 for dosing information for levodopa/carbidopa.

Differential Diagnosis

20. Primary care clinicians may struggle with the differential diagnosis for Parkinson disease due to conditions presenting with similar symptoms (Table 2). In the case of suspected Parkinson disease, an e-consult with a neurologist or Parkinson disease specialist can help confirm a diagnosis and advise on how to initiate treatment.

Table 2. Differential Diagnosis of Parkinson Disease [1,35,47-51]

Parkinson Disease Mimic	Characteristics	Levodopa Responsiveness
Essential or dystonic tremor	• Tremor is absent at rest but becomes apparent with posture (e.g., with the arms outstretched) or when using the hands (action tremor) • Instead of micrographia, handwriting is usually large and shaky • Tremor also affects the head, neck, and voice • Other motor and non-motor signs of Parkinson disease are typically absent	• Absent
Drug-induced parkinsonism	• Antidopaminergics: recent or prolonged exposure • Antipsychotics: including typical ones at any dose and atypical ones at higher doses (except quetiapine) • Antiemetics: metoclopramide and prochlorperazine • Typically, bilateral and symmetrical parkinsonism; can still present like typical Parkinson disease • Gait issues less prominent • Motor issues more commonly in upper limbs • In more than half of cases, onset is less than 1 month	• Do not treat with levodopa, discontinue or switch medication causing parkinsonism • May take up to a year for symptoms to subside

Note: Table 2 continues on the next page