**PARKINSON’S DISEASE**

(also known as “Parkinson’s syndrome”, “paralysis agitans”, “shaking palsy” and “PD”)

**Note:** Unless otherwise referenced, this fact sheet addresses Parkinson’s disease in patients/clients who do not have an implanted deep brain stimulation (DBS) system. The implications of a DBS system are addressed in more detail in another fact sheet.

### Is the initiation of non-invasive dental hygiene procedures* contra-indicated? **No**, in the absence of an implanted deep brain stimulation system.

- **Is medical consult advised?** No (assuming patient/client is already under medical care for Parkinson’s disease, which is well controlled); also assuming there are no complications associated with DBS system.

### Is the initiation of invasive dental hygiene procedures contra-indicated? **No**, in the absence of an implanted deep brain stimulation system.

- **Is medical consult advised?** See above.
- **Is medical clearance required?** Possibly (e.g., if there are significant involuntary muscle movements creating a safety concern for the dental hygienist and/or the patient/client and/or there is DBS system).
- **Is antibiotic prophylaxis required?** No
- **Is postponing treatment advised?** Possibly (e.g., if there are significant involuntary muscle movements creating a safety concern for the dental hygienist and/or the patient/client).

### Oral management implications

- The dental hygienist who treats adult patients/clients can play an important role in recognizing the features of Parkinson’s disease and encouraging medical consult for definitive diagnosis and treatment.

- For persons with known PD, appointments are usually best scheduled for the morning, because weakness and fatigue increase during the day. The patient/client can take levodopa 60 to 90 minutes prior to the office visit to take advantage of the peak response period, which may improve the person’s ability to meet the demands of the dental hygiene examination. As the disease progresses, the amount of time the patient/client responds optimally to PD medications decreases, and therefore shorter, more frequent dental hygiene visits may be more realistic and productive.

- Depending on the severity of PD, patients/clients may be ambulatory but using assistive walking devices or may be confined to a wheelchair. They may have difficulty rising from a sitting position and trying to turn from one side to another in the recumbent position. Therefore, sufficient time should be booked for an appointment so the patient/client’s mobility and communication challenges can be addressed without rushing. As well, the dental hygienist may need to provide the patient/client with treatment breaks, depending on degree of muscular and mental fatigue.

- Postural hypotension and dizziness may be a consequence of low blood pressure induced by medications used to treat PD (including levodopa, bromocriptine mesylate, tolcapone, entacapone, and selegiline). Therefore, the dental hygienist should be cautious when adjusting the dental chair, with inclination occurring slowly to allow for re-equilibration. To reduce the likelihood of a fall, the patient/client should be assisted to and from the chair.

- For some persons with PD, maintenance of body stability may be a concern, given the presence of tremors and/or choreiform (rapid jerky) movements. The patient/client may need to be secured in the dental chair with restraints or support devices, such as soft ties, belts, or pillows. A caregiver may play a role in holding a patient/client.

- The patient/client’s involuntary muscle movements can create a safety concern for the dental hygienist. Choreiform movements, dyskinesias (particularly oro-buccal), and tremors associated with the use of levodopa or its derivatives may require sedation techniques. In very severe cases, it may be necessary to refer the client for treatment under general anesthesia.

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Oral management implications (cont’d)

- If there is swallowing difficulty and a diminished gag reflex, the patient/client may need to be seated in a more upright position to avoid choking and aspiration. Optimal suctioning and limiting use of water can help prevent airway obstruction.

- Mouth props or bite blocks may be useful where there are impaired oral reflexes, muscle weakness, and tremors. To prevent injury to the dental hygienist from sudden closing of a patient/client’s mouth, a finger guard may be considered.

- If the patient/client is being treated with deep brain stimulation, potential electrical energy transmission and electromagnetic interference are concerns. Appropriate precautions should be taken with dental and dental hygiene procedures and related equipment.

- Instructions for individualized self-care should be customized based on the patient/client’s level of motor coordination (e.g., hand strength, ability to use toothbrush). Toothbrush and toothpaste dispenser modifications (e.g., Collis curve toothbrush or power toothbrush and pump/flip-top toothpaste dispensers) may be indicated, as may be alternatives to dental floss. Only patients/clients with the ability to adequately control gagging and swallowing can safely use fluoride and chlorhexidine rinses at home.

- As the disease progresses, more of the oral healthcare will necessarily be performed by caregivers. Therefore, caregivers need to be instructed in effective plaque-control procedures, as well as client positioning for optimal stability and access.

- A non-cariogenic diet should be recommended, especially to patients/clients with mastication and swallowing difficulties who might be inclined to consume soft, carbohydrate-rich foods. Appropriate nutrition and caloric intake should also be ensured, because persons with PD often avoid nutrition-rich foods such as vegetables, which require the ability to chew well.

- Because xerostomia is a common medication side effect, saliva substitutes can be recommended. This will reduce dysphagia and improve denture retention. Topical fluoride should be considered to prevent root caries.

- Muscle rigidity and tremors make repetitive muscle movement difficult, and hence the ability to perform good oral self-care is challenging. Frequent dental hygiene care appointments are often needed to achieve and maintain optimal oral health.

- Mouthwashes are generally discouraged, because they present the risk of choking in persons with PD. Where they still are an option, non-alcohol based formulations that use either chlorhexidine or baking soda can be recommended. An alternative to mouthwash is a chlorhexidine brush/swab.

- A speech and language therapist may be able to help with swallowing problems with exercises to strengthen lips, tongue, and throat plus dietary advice to include foods and liquids that are easier and safer to swallow.

Oral manifestations

- Patients/clients with Parkinson’s disease have reduced facial expression and animation (“mask face” or “Parkinson’s face”), and they are prone to drooling, which can lead to angular cheilitis. The characteristic tremors can occur in the tongue, lips, and neck.

- Tongue thrusting (“fly-catcher tongue”) and lip pursing are common.

- In advanced disease, there may be dysphagia (difficulty swallowing). Food and saliva may collect in the mouth and back of the throat, which can result in choking and drooling.

- Some patients/clients experience burning pain — often pulsating — in the anterior tongue, hard palate, alveolar ridge, and lips (“burning mouth syndrome”).

- Medications used to manage PD (e.g., anticholinergics, dopaminergics, amantadine, and levodopa) often result in xerostomia.
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Related signs and symptoms

- Parkinson’s disease is a chronic, progressive disorder of the motor nervous system. It typically onsets during middle and old age, with peak age of onset between 55 and 65 years. PD occurs in about 1 in 1,000 persons in the general population and in 1% of persons older than 65 years. Approximately 100,000 residents of Canada live with PD. It is more common among Caucasians than in persons of black African or oriental Asian ancestry, and just under twice as common in men than in women. Genetics are implicated in a minority of cases, and exposure to chemicals in the environment might also play a role.

- The disorder is characterized by the progressive loss of dopamine-synthesizing neurons in the midbrain of the brainstem. The deficiency of the neurotransmitter dopamine interferes with the conduction of nerve impulses related to muscle activity.

- The characteristic manifestations of Parkinson’s disease are tremor (trembling in hands, arms, legs, jaw, and face); rigidity (stiffness of limbs and trunk); bradykinesia (slowness of movement); akinesia (reduction in muscle movement); and postural instability (poor balance and coordination). The tremor occurs at rest, is rhythmic, and usually involves primarily the hands (“pill rolling tremor”); it typically stops during intended movements.

- Akinesia and bradykinesia lead to infrequent blinking, as well as posture and gait abnormalities, such as rapid, short, shuffling steps.

- Patients/clients usually stand in a slightly stooped posture with arms flexed. They often have difficulty in starting to walk; when they finally succeed, their steps are short and arm swing is reduced or absent. When they turn, normal fluid movements are replaced by turning the body as a whole, and they may have difficulty stopping immediately.

- Pain [musculoskeletal, sensory (burning, numbness, tingling), and akithsia (subjective feeling of restlessness — restless leg syndrome)], and bowel and bladder dysfunction (e.g., constipation and bladder urgency/frequency) occur in about 50% of persons with PD.

- Other symptoms include a soft, barely audible voice with pitch monotony, as well as progressive difficulty writing, which results in micrographia (tiny script).

- Cognitive impairment of memory and concentration occurs to a variable degree. Mood disturbances (depression, anxiety, apathy) and insomnia, and fatigue are common. Dementia occurs in approximately 25% of patients/clients.

- Drug-induced psychosis (related to dopaminergic medications) occurs in up to 20% of persons treated for Parkinson’s disease. PD medications can also result in nausea and tardive dyskinesia (involuntary repetitive movements of facial, buccal, oral, and cervical muscles).

- Several conditions may mimic Parkinson’s disease in their clinical presentation, due to lack of dopamine in the brain. These include “Atypical Parkinsonism” or “Secondary Parkinsonism” health problems (e.g., AIDS, encephalitis, meningitis, stroke, carbon monoxide poisoning, mercury poisoning, and narcotic overdose), as well as the side effects of drugs such as antipsychotics (e.g., haloperidol and phenothiazines) and the gastrointestinal medication metoclopramide.

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References and sources of more detailed information

- MedlinePlus, U.S. National Library of Medicine, National Institutes of Health
  www.nlm.nih.gov/medlineplus/parkinsonsdisease.html
- Parkinson Society of Canada  www.parkinson.ca
- “Dental and oral health in Parkinson’s” (updated Feb. 2014). Parkinson’s UK.
  www.parkinsons.org.uk/content/dental-and-oral-health-parkinson’s-information-sheet
  http://jada.ada.org/content/140/6/658.abstract
- MedlinePlus, U.S. National Library of Medicine, National Institutes of Health
- National Institute of Neurological Disorders and Stroke

* Includes oral hygiene instruction, fitting a mouth guard, taking an impression, etc.

** Ontario Regulation 501/07 made under the Dental Hygiene Act, 1991. Invasive dental hygiene procedures are scaling teeth and root planing, including curetting surrounding tissue.

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