

**Parkinson's Disease Clinic and Research Center
University of California, San Francisco
505 Parnassus Ave., Rm. 795-M, Box 0114
San Francisco, CA 94143-0114
(415) 476-9276
<http://pdcenter.neurology.ucsf.edu>**



Precautions Regarding Hospitalization

People with Parkinson's disease should be aware of several precautions when planning surgical treatments (for example, abdominal surgery or joint replacement surgery) or undergoing hospitalization for other reasons such as infection. Similar precautions apply to a person with Parkinson's disease who must be taken to a hospital emergency department for urgent treatment (for example, for fever, chest pain or confusion).

When someone with Parkinson's disease is being evaluated for medical or surgical treatment, it is extremely important to make sure that all healthcare providers know about the diagnosis of Parkinson's disease. It is also necessary to review with the doctor(s) what medications should be avoided because of the disease or its treatment.

For patients who are to be sedated or require treatment for agitation or confusion

Avoid the following medications:

- Chlorpromazine (Thorazine®)
- Fluphenazine (Prolixin®)
- Haloperidol (Haldol®)
- Loxapine (Loxitane®; Loxapac®)
- Molindone (Moban®)
- Olanzapine (Zyprexa®)
- Perphenazine (Trilafon®)
- Risperidone (Risperdol®)
- Thioridazine (Mellaril®)
- Thiothixene (Navene®)
- Trifluoperazine (Stelazine®)

The following medications may be used if needed:

- Clozapine (Clozaril®)
- Diazepam (Valium®)
- Lorazepam (Ativan®)
- Propofol (Diprivan®)
- Quetiapine (Seroquel®)

For patients who require treatment for nausea

Avoid the following medications:

- Chlorpromazine (Thorazine®)
- Droperidol (Inapsine®)
- Metoclopramide (Reglan®; Maxeran®)
- Prochlorperazine (Compazine®; Stemetil®)

Medications that may be used include:

- Domperidone* (Motilium®)
- Dolasetron (Ansetmet®)
- Granisetron (Kytril®)
- Ondansatron (Zofran®)
- Trimethobenzamide (Tigan®)

*not available the United States but available in Canada

Patients receiving selegiline or rasagiline

Individuals who take selegiline (Eldepryl®, Atapryl®, Carbox®) or rasagiline (Azilect®) should never receive meperidine (Demerol®), a pain medication frequently used before or after medical or surgical procedures.

Antiparkinsonian medication and surgery

Prior to surgery, levodopa (carbidopa/levodopa or Sinemet®) as well as dopamine agonists (bromocriptine (Parlodel®), pramipexole (Mirapex) or ropinirole (Requip®) should be continued as late as possible on the day of the operation and resumed as early as possible after the operation (with sips of water or by nasogastric tube).

During the hospitalization or postoperatively

Hospitalization after a surgical procedure or major medical problem may be prolonged in people with Parkinson's disease. Resuming Parkinson's disease medication as soon as possible and early mobilization (sitting up in bed, sitting in a chair, and walking if possible) may help prevent complications and shorten time spent in the hospital. Medications appropriately used to treat pain can cause hallucinations or confusion even if they had not occurred previously. In these circumstances, treatment with an antipsychotic medication such as quetiapine may be useful until the pain medications can be reduced or stopped.

Precautions for those with deep brain stimulators

You must alert health care providers that deep brain stimulators are in place. When exposed to strong electrical fields, the deep brain stimulator system can carry unintended electrical energy capable of causing brain injury even if the system is turned off. For this reason, patients with stimulators in place must avoid circumstances in which they may be exposed to electrical currents. It is also necessary to turn off the deep brain stimulator for some routine medical testing such as an electrocardiogram (ECG or EKG) and an electroencephalogram (EEG). Accordingly, patients should bring their DBS controller (such as the Medtronic Access Controller) or magnet to turn it off if necessary.

Patients should avoid diathermy, a form of treatment that delivers heat to tissue using an electrical energy. Diathermy is used by a variety of healthcare professionals, including physical therapists, nurses, chiropractors, dentists, sports therapists, and others. Healthcare professionals may refer to diathermy using the term "deep heat" or similar terms. These electrical devices (shortwave, microwave, or therapeutic ultrasound diathermy) may cause damage even if no heat is created. The exact nature of the tissue or nerve damage depends on the location of the stimulation electrodes implanted in the patient (e.g. brain, spinal cord, sacral nerve, stomach), and the extent of the exposure to diathermy treatment.

Electrocautery (a surgical technique used to cut tissue) can damage the deep brain stimulator lead or extension. It can also cause temporary suppression of neurostimulator output or reprogramming of the neurostimulator. If electrocautery is necessary, the current path (ground plate) should be kept as far away from the neurostimulator, extension, and lead as possible. Bipolar electrocautery is recommended.

MRI (magnetic resonance imaging), particularly when body parts other than brain are imaged, may cause damage to the deep brain stimulators or brain.

If more specific information is needed, questions can be directed to Medtronic's Technical Support Line for Activa Therapy: (800) 510-6735

Summary

These precautions for a person with Parkinson's disease who is about to undergo major surgical or medical care can be summarized as follows:

- 1)** Alert medical personnel to the diagnosis of Parkinson's disease.
- 2)** Avoid medications that block dopamine receptors because they interfere with Parkinson's disease medications. Many medications used for anxiety, confusion, and psychosis as well as anti-nausea medications block dopamine receptors. Share the list (above) with your doctor(s).
- 3)** For individuals who take selegiline or rasagiline, meperidine (Demerol®) should be avoided.

- 4) Take Parkinson's disease medications until the surgical or medical procedure and then resume these medications as soon after the procedure as possible.
- 5) Because recovery from major surgery may take longer for people with Parkinson's disease, physical therapy and extra recovery time may be necessary.
- 6) If deep brain stimulators are in place, diathermy must be avoided. Electrocautery and MRI scanning should only be performed by staff knowledgeable about their use in patients with deep brain stimulators. Patients should bring their DBS controller (such as the Medtronic Access Controller) or magnet to the hospital to turn it off if necessary.

Copyright © 2010, The Regents of the University of California