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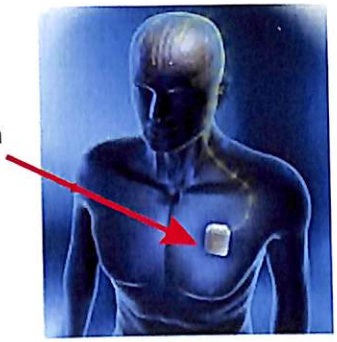
COMPREHENSIVE CARE CENTRE FOR MOVEMENT DISORDERS

PATIENT INFORMATION SHEET

"Early Deep Brain Stimulation for Parkinson's Disease"



Introduction

The treatment options for patients who develop drug-related complications in Parkinson's disease (PD) such as shortening of duration of effect of drugs or unwanted excessive movements with drugs (dyskinesias) changed dramatically with the arrival of the neurostimulation technique called Deep Brain Stimulation (DBS). With this neurostimulation procedure, the severity of symptoms of PD can be controlled to a large extent. As a result, patients will experience much less

fluctuations in the response to drugs. This will allow reduction in the dose of drugs, thus eliminating dyskinesias caused by drugs and improving the quality of life of patients. In the last 15- to 20 years, DBS was offered only after many trials of medical treatment failed to give stable benefits without dyskinesias. In effect, patients who were chosen to undergo DBS would have already had PD for more than 10 years and suffered the a poor quality of life for many years and would be expected to progress into more advanced stages of the disease in another 4 or 5 years, when DBS would not be as effective in improving quality of life.

What is "early" DBS?

"Early DBS" is the concept of performing neurostimulation through DBS in patients soon after the onset of the fluctuations in the response to drugs or as soon as they develop dyskinesias due to drugs, before these symptoms significantly affect the individual's social and occupational life. A recent study (Schüpbach et al., 2013) in the USA in PD patients found out that the quality of life was much better in patients who received DBS early, compared to those who continued on medical treatment. The risk of surgery in

experienced centers is very low and not greater than complications related to medical treatment. Patients who are chosen for early DBS usually have PD for less than 5-10 years and have been experiencing unwanted side effects of drugs for only 1-3 years or less. Thus early intervention would allow them to enjoy the benefits of neurostimulation for many years before the development of problems of later stages of the disease that may not respond well to neurostimulation. DBS improves severity of tremor, stiffness, slowness and dyskinesias for more than 10 years at least but does not prevent the natural progression of disease in future. Early DBS is now adopted by many centers around the world, including our centre with promising early results.

Who can undergo early DBS?

A PD patient can undergo early DBS if he/she has:

- Parkinson's disease for at least 4 years
- No features to suggest other diseases that may resemble PD (atypical parkinsonism)
- Excellent response of symptoms to levodopa
- Presence of unwanted drug effects

(fluctuating between good (ON) and bad states (OFF) and/or drug-related dyskinesias) of any severity but disturbing for the patient

- These unwanted effects are present for <3 years duration
- No significant cognitive impairment, depression, psychiatric problems
- No major medical contraindications for surgery
- Stable social situation and realistic expectations from neurostimulation
- Access to experienced DBS team for pre and post –operative long- term care

What is the difference from conventional DBS?

The only difference from conventional DBS is the time at which it is offered. All other procedures before, during and after the procedure are the same. The results of neurostimulation, in terms of control of symptoms of Parkinson's disease and side effects due to the intervention, are also similar for both conventional and early DBS.

What are the specific advantages?

The specific advantage of opting for early DBS is

that similar control of symptoms can be obtained at an earlier stage, when the unwanted effects have only recently started. For PD patients, after the initial years of levodopa therapy, quality of life is affected and disabling motor symptoms occur once the unwanted drug effects set in. Especially for younger PD patients, medication adjustments that may not provide good relief for long, take up many years of their productive life, till they are judged suitable for DBS. Early DBS offers the same benefits of DBS surgery at an earlier stage when they can still engage productively in their social and occupational lives.

Also, after 10-15 years of illness, many PD patients develop symptoms like memory impairment, falls and freezing while walking and problems with bladder control, swallowing, clarity of speech etc. DBS will neither prevent nor relieve these non-motor symptoms. Offering DBS early would mean more years of an active life, before these non-motor complications set in.

Are there any specific complications?

The risks are similar to conventional DBS surgery. The only difference is that

patients undergoing early DBS will have lesser disability at the time of surgery than patients offered conventional DBS, as their motor complications are of newer onset and not as established.

As a result, the dramatic benefit in disability experienced by the patient after conventionally offered DBS may not be apparent with early DBS as the baseline disability is less.

Patients and caregivers should be aware of the option of early DBS, especially for active PD patients, who may be worried about the impact of unwanted drug effects on their quality of life and functioning. It is an individual patient's decision whether he/she chooses to opt for early DBS or not. It is important to have realistic expectations of benefit and a clear understanding of the risks involved.

• Schuepbach WM, Rau J, Knudsen K et al. Neurostimulation for Parkinson's disease with early motor complications. N Engl J Med 2013;368:618-622

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