MOVEMENT DISORDERS

Ablative surgery for Parkinson disease

Creation of a permanent lesion in the subthalamic nucleus (STN) might provide an alternative approach to deep brain stimulation (DBS) in the treatment of Parkinson disease when the latter procedure is contraindicated or unavailable. A report, published in the *Journal of Neurology, Neurosurgery and Psychiatry*, details the effects of unilateral subthalamotomy on 89 patients with Parkinson disease who were followed-up over a period of 3 years—the largest and longest study of its type. “[A] unilateral STN lesion induces a marked improvement [in the motor function of patients] on the contralateral side and moderate improvement of axial features, with minimal or no improvement on the ipsilateral side,” states lead investigator Jose Obeso, from the University of Navarra, Spain.

DBS has emerged as an effective treatment for Parkinson disease in patients who do not respond to conventional pharmacological therapies. Nevertheless, DBS is unsuitable for some patient groups—for example, those with immunodeficiency—and infections resulting from the insertion of the neurostimulatory device can be a problem. One of the biggest drawbacks

to DBS, however, is cost, which prohibits the use of this technique in less affluent regions of the world. Preliminary studies conducted on humans and primates suggest that these issues surrounding DBS could be circumvented by ablative surgery in the STN.

Patients involved in the study underwent surgery between 1995 and 2004, and at the time of the surgical procedure, all the patients were receiving chronic treatment with levodopa and benserazide; most patients also received dopamine agonists. Lesions were made above the dorsal boundary of the STN contralaterally to the side (of the patient) exhibiting the worst clinical symptoms, and follow-up examinations were conducted at 12 months (68 patients), 24 months (36 patients) and 36 months (25 patients). The responses of the patients to the surgical procedure were assessed using the Unified Parkinson Disease Rating Scale (UPDRS) part III, which allowed evaluation of the individuals’ motor abilities in both the ‘off’ and ‘on’ medication states.

The patients showed improved motor abilities compared with baseline in both medication states at all time points, except for 36 months when the ‘on’ score

was no different to the baseline value. The investigators attribute the latter to the deterioration of ipsilateral and axial characteristics on the UPDRS part III. In addition, the patients required reduced levodopa doses compared with baseline over the 3-year period. Adverse events were exhibited by 20 patients following surgery and 14 of these individuals developed hemichorea–ballism, which was arrested by pallidotomy. According to the authors, the development of hemichorea–ballism appeared to be related to higher preoperative dyskinesia scores, which could preclude some individuals from undergoing this procedure.

“Our next step is to undertake a placebo (sham surgery) controlled study ... and, concomitantly, to initiate a long-term study aimed to examine a possible disease-modifying effect of early subthalamotomy for Parkinson disease,” states Obeso.

Darran Yates

Original article Alvarez, L. *et al.* Therapeutic efficacy of unilateral subthalamotomy in Parkinson's disease: results in 89 patients followed up to 36 months. *J. Neurol. Neurosurg. Psychiatr.* [doi:10.1136/jnnp.2008.154948] (2009).