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Dystonia – one disease, multiple surgical targets

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Background and purpose: Dystonia, with its variety of clinical forms is a multidisciplinary challenge for physicians. The authors present a group of patients with various dystonia types treated with subthalamic (STN) or pallidal (GPi) deep brain stimulation (DBS) with a dystonia-type related target.

Materials and methods: 48 patients (25 male, 23 female) aged from 6 to 64 (mean 31.4) affected by different types of dystonia were treated with DBS. 18 patients were diagnosed with idiopathic general dystonia, 17 NBIA- related general dystonia, 5 hemidystonia, 3 torcicollis, 2 DYT-1- related general dystonia, 1 myoclonic dystonia and 1 oromandibular dystonia. The patients were evaluated with the Fahn-Marsden Scale (FMS), Unified Dystonia Rating Scale (UDRS), Global Dystonia Scale (GDS) and torticollis patients were evaluated with the Toronto Western Spasmodic Torticollis Rating Scale (TWSTRS) before treatment and 6, 12 and 24 moths after the procedure. Permanent electrodes were implanted in the GPi in 31 cases or in the STN in 15 patients or GPi and STN in 2 patients. The target was identified by direct and indirect methods. Intrasurgical macrostimulation and microrecording were used for neurophysiological evaluation of the target.

Results: Improvement was reported on each scale and in each subgroup. The best effect was achieved among patients with the DYT-1 mutation and the worst in the NBIA group. There was no significant difference in effectiveness between the GPi and STN group. Adding a second target (GPi plus STN) had a positive effect on improvement. No serious complications were reported.

Conclusions: The effectiveness of GPi and STN DBS in dystonia are comparable. Multiple target treatment might increase the effectiveness of DBS- dystonia treatment.

Key words: deep brain stimulation, dystonia, globus pallidus, STN

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