

STIMULATION IN THE VIM AS TREATMENT OF ESSENTIAL TREMOR

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Objective: Deep brain stimulation (DBS) is well established as treatment in movement disorders, especially in Parkinson's disease. 208 patients have been treated with DBS in our department during the last 6 years for different indications. With the following data we report on our experience with DBS of the Nucleus ventralis intermedius (VIM) for patients with essential tremor (ET).
Methods: 16 patients with ET (8 male, 8 female) underwent implantation of DBS electrodes into the VIM between 2000 and 2004. In all cases intraoperative microelectrode recording and macrostimulation was performed before implantation of the permanent electrode.

Results: In all 16 patients implantation was bilateral. According to results of intraoperative microelectrode recordings and macrostimulation 17 permanent electrodes were implanted in the central trajectory, followed by 9 in the medial trajectory. Only 3 were placed in the lateral trajectory, 2 in anterior and 1 in the posterior trajectory. Implantation was not symmetric in 11 cases. Patients were followed up with Fahn and Bain Tremor score. The averaged preoperative score was 58 (Fahn) and 57 (Bain), declined to 31 and 33 at 3-months, at 12-months control 30 and 38 were measured. Best stimulation effect was seen on the lowest contact both sides, for 5 electrodes the stimulated contact was transferred into contact 1 or 2 because of side effects like ataxia or dysesthesia under stimulation.

Conclusion: In ET bilateral VIM stimulation significantly reduces handicap caused by both extremity and head and neck tremor. The centro- and medio-caudal portion of VIM was localized as most effective stimulation site. The effect was not fading after one year of stimulation as far as our follow-up could show.