Posterior subthalamic area deep brain stimulation

The posterior subthalamic area (PSA), including the prelemniscal radiation and the zona incerta, emerged as a potential new anatomical target to treat ET \(^1\) \(^2\) \(^3\) \(^4\).

Case series

Three right-handed patients diagnosed with Holmes tremor (HT), who suffered from pharmacotherapy-refractory tremor, were eligible for unilateral posterior subthalamic area deep brain stimulation (PSA-DBS). All patients were evaluated with the Fahn-Tolosa-Marin Tremor Rating Scale (FTMTRS) and Clinical Global Impression scale (CGI) before DBS, 6, and 12 months after the PSA-DBS as well as at the last follow-up. In all patients, we observed a significant improvement of tremor control as demonstrated by changes in the FTMTRS and the CGI scales. Mean improvement of tremor in all patients was 56% for the FTMRTS with a corresponding change in the CGI scale. Our study demonstrates that PSA-DBS is efficacious in the treatment of HT. Indeed, PSA is a promising target for DBS for intractable proximal and distal tremor, even in cases of previous, suboptimal functional neurosurgery. The beneficial effect lasts over a long-term follow-up. PSA-DBS may be considered as an alternative target of DBS in tremor treatment \(^5\).