

Efficacy of tc-MRgFUS Thalamotomy in The Treatment of Essential Tremor (ET) and Parkinson Disease (PD) Tremor: Experience From 39 Patients in A Single Centre with Long Term Follow-Up

Wednesday 12:45-1:15 PM | NR438-SD-WEB7 | NR Community, Learning Center, Station #7

PURPOSE

To report the mid and long term follow-up clinical and MR imaging results in the treatment of ET and PD tremor using tcMRgFUS thalamotomy

METHOD AND MATERIALS

In the period February 2018-March 2018, we enrolled 39 patients (22 males, 17 females, mean age 64.6 years) with disabling and refractory tremor (18 ET, 21 PD tremor, mean duration of symptomatology 10.4 years) who were subjected to unilateral Vim ablation using MRgFUS. Clinical evaluation was performed using the Fahn-Tolosa-Marin scale (FTM) for tremor and the QUEST score for quality of life, assessed before treatment, immediately after treatment and with follow-up at 1 month, 6 months and 1 year. Instrumental MRI follow-up was performed immediately after treatment and at 1-month, 3-months and 6-months follow-up. Sonication parameters were recorded in all procedures.

RESULTS

Treatment was effective (substantial and immediate reduction of tremor) in 37 out of 39 patients (94.8%). In ET patients FTM scores decreased significantly from mean values of 36.2 before treatment to 13.8 immediately after treatment. The improvement was stable at the following follow up evaluations (14.6 at 1 month, 14.3 at 6 months, 14.5 in the patients evaluated after 1 year). In PD patients FTM scores decreased from mean values of 27.5 before treatment to 11.6 immediately after treatment. At the 6-months follow up mean FTM score was 15.5, due to mild recurrence of tremor in 4 patients, that remained stable at 1 year. Quality of life evaluation showed substantial improvement in both groups (73.2% reduction of the QUEST scores in ET patients, 68% in PD). Temporary side effects and complications (dysarthria, perioral paresthesias, limb weakness) occurred in 7 patients after treatment, with resolution at the 6-months follow-up in 4 patients. Instrumental imaging follow-up showed a progressive reduction of thalamotomy lesion size and perilesional edema in both groups without significant difference between ET and PD patients

CONCLUSION

MRgFUS thalamotomy is a safe and effective treatment option for tremor in patients with ET and PD

CLINICAL RELEVANCE/APPLICATION

Our long term follow up in a consistent number of PD patients confirmed lesser stability of treatment effects in comparison with ET patients, with however significant improvement in quality of life for both patient groups.