Bilateral deep brain stimulation

Sadeghi et al. retrospectively reviewed operation protocols and MRIs of 30 patients who underwent bilateral DBS. For microrecording and macrostimulation, we used three parallel channels of the 'Ben Gun' centred on the MRI-planned target. Pre- and post-operative MRIs were merged. The distance between the planned target and the centre of the implanted electrode artefact was measured. RESULTS: There was no significant difference in targeting precision on both sides of surgery. There was more intra-operative adjustment of the second electrode positioning based on microrecording and macrostimulation, which allowed to significantly approach the MRI-planned target on the medial-lateral axis. CONCLUSION: There was more electrode adjustment needed on the second side, possibly in relation with brain shift. We thus suggest performing a single central track with electrophysiological and clinical assessment, with multidirectional exploration on demand for suboptimal clinical responses [1)].

1)
Sadeghi Y, Pralong E, Knebel JF, Vingerhoets F, Pollo C, Levivier M, Bloch J. Bilateral deep brain stimulation: the placement of the second electrode is not necessarily less accurate than that of the first one. Stereotact Funct Neurosurg. 2015;93(3):160-7. doi: 10.1159/000368439. Epub 2015 Mar 18. PubMed PMID: 25791181.