Bilateral lesion

Bilateral lesions of the basal ganglia using thermocoagulation or radiation for improving tremor, bradykinesia, and rigidity in people with Parkinson's disease (PD) have been performed starting several decades ago, especially when levodopa and deep brain stimulation (DBS) surgery were not available. However, because of unclear additional benefits compared to unilateral lesions, particularly the evidence of increased adverse events occurrence, bilateral lesions were abandoned at the end of the 20th century. Therefore, bilateral DBS has become the standard procedure for treating PD. Magnetic resonance imaging-guided focused ultrasound (MRgFUS) is an emerging incision-less technique used to produce therapeutic brain ablation. The positive experiences of unilateral MRgFUS ablation for PD, along with the preliminary favorable outcomes of bilateral thalamic MRgFUS for essential tremor, raise the possibility of eventually reintroducing bilateral lesioning in managing PD motor features. This possibility has so far only been tested in a few small studies. Rodriguez-Oroz et al. review the evidence of bilateral lesioning of the basal ganglia for Parkinson's disease treatment and elaborate on current gaps, controversies, and perspectives of the different available neurosurgical procedures specifically of MRgFUS ablation [1)].

The review underscores that current evidence is insufficient to justify a widespread reintroduction of bilateral lesions, even with advanced techniques like MRgFUS. This work serves as a call to action for the scientific and medical communities to rigorously evaluate this approach through well-designed studies.

The article is a timely contribution to the field and raises critical questions about how innovation should be balanced with patient safety and established treatment paradigms. It will undoubtedly serve as a reference point for future discussions on this topic.

1)
Rodriguez-Oroz MC, Martínez-Fernández R, Lipsman N, Horisawa S, Moro E. Bilateral Lesions in Parkinson's Disease: Gaps and Controversies. Mov Disord. 2024 Dec 27. doi: 10.1002/mds.30090. Epub ahead of print. PMID: 39726415.