The effect of anesthesia type in terms of asleep vs. awake deep brain stimulation (DBS) surgery on therapeutic window (TW) has not been investigated so far. The objective of a study of Senemmar et al. was to investigate whether asleep DBS surgery of the subthalamic nucleus (STN) improves TW for both directional (dDBS) and omnidirectional (oDBS) stimulation in a large single-center population.

A total of 104 consecutive patients with Parkinson's disease (PD) undergoing STN-DBS surgery (80 asleep and 24 awake) were compared regarding TW, therapeutic threshold, side effect threshold, improvement of Unified PD Rating Scale motor score (UPDRS-III) and degree of levodopa equivalent daily dose (LEDD) reduction.

Asleep DBS surgery led to significantly wider TW compared to awake surgery for both dDBS and oDBS. However, dDBS further increased TW compared to oDBS in the asleep group only and not in the awake group. Clinical efficacy in terms of UPDRS-III improvement and LEDD reduction did not differ between groups.

The study provides first evidence for improvement of therapeutic window by asleep surgery compared to awake surgery, which can be strengthened further by dDBS. These results support the notion of preferring asleep over awake surgery but needs to be confirmed by prospective trials [1].

1)
Senemmar F, Hartmann CJ, Slotty PJ, Vesper J, Schnitzler A, Groiss SJ. Asleep Surgery May Improve the Therapeutic Window for Deep Brain Stimulation of the Subthalamic Nucleus [published online ahead of print, 2020 Jul 13]. Neuromodulation. 2020;10.1111/ner.13237. doi:10.1111/ner.13237