Stealth Autoguide

Stereotaxy is routinely performed for brain biopsy, deep brain stimulation, and placement of stereoelectroencephalography (SEEG) electrodes for epilepsy. The developed Stealth Autoguide (Medtronic, Minneapolis, MN, USA) device does not require patients to don a stereotactic frame.

<html><iframe width="560" height="315" src="https://www.youtube.com/embed/saobOzcunbY" frameborder="0" allow="accelerometer; autoplay; clipboard-write; encrypted-media; gyroscope; picture-in-picture" allowfullscreen></iframe> </html>

In a preclinical study, Brandman et al. sought to quantitatively compare the Stealth Autoguide robotic system to 2 devices commonly used in clinical practice: the Navigus biopsy system (Medtronic) and the Leksell stereotactic system (Elekta Ltd., Stockholm, Sweden).

In the first experimental setup, they compared target accuracy of the Stealth Autoguide to the Navigus system by using phantom heads filled with gelatin to simulate the brain tissue. In the second experimental setup, they inserted SEEG electrodes to targets within cadaveric heads in a simulated operating room environment.

Using a homogeneous gelatin-filled phantom 3D reconstruction of a human head, they found that using the Stealth Autoguide system while maintaining accuracy, was faster to use than the Navigus system. In the simulated operating room environment using nonliving human cadaveric heads, they found the accuracy of the Stealth Autoguide robotic device to be comparable to that of the Leksell stereotactic system.

These results compare the use of the Stealth Autoguide robotic guidance system with commonly used stereotactic devices, and this is the first study to compare its use and accuracy with the Leksell frame. These findings provide mounting evidence that Stealth Autoguide will have potential clinical uses in various stereotactic neurosurgical procedures [1].

1)
Brandman D, Hong M, Clarke DB. Preclinical Evaluation of the Stealth Autoguide Robotic Guidance Device for Stereotactic Cranial Surgery: A Human Cadaveric Study. Stereotact Funct Neurosurg. 2021 Feb 10:1-8. doi: 10.1159/000512508. Epub ahead of print. PMID: 33567429.