More than 50 PoleStar systems have been installed in ORs worldwide since 2001. The launch of the PoleStar N30 is the culmination of six years of research and development by Medtronic scientists and engineers working with surgeon customers from leading hospitals and clinics.

The PoleStar N30 system received the Chicago Athenaeum Museum of Architecture and Design 2009 Good Design Award – the world's oldest and most prestigious award for global design excellence.

Seventy-eight consecutive patients underwent stereotactic biopsies with the PoleStar N-20/N-30 ioMRI system and data were evaluated retrospectively. Biopsy technique included ioMRI before surgery, followed by insertion of the biopsy cannula in the lesion, and ioMRI before and after biopsy. Statistical analysis was performed to compare subgroups using Excel and SPSS statistic software. RESULTS: In all patients, stereotactic biopsy was possible, with a mean intraoperative surgery time of 86.2 ± 28.6 min and a mean hospital stay of 11.6 ± 4.6 days. In 97.4 % (n = 76), histology was conclusive, representing 58 brain tumors and 18 other pathologies. Five patients were biopsied previously without conclusive diagnosis, and all biopsies were conclusive this time. Mean cross-sectional lesion size in MRI T1 with contrast (n = 64) was 6.9 ± 5.7 cm(2), and in lesions without T1 contrast enhancement (n = 14), T2 mean cross-sectional lesion size was 5.5 ± 3.9 cm(2). Mean distance from the cortex surface to the lesion was 3.4 ± 1.2 cm. One patient suffered from a postoperative wound dehiscence; neither clinically or radiologically significant hemorrhage after surgery, nor intraoperative complications occurred. CONCLUSIONS: Low-field ioMR-guided frameless stereotactic biopsy accurately diagnosed different intracerebral lesions without major complications for the patients, and within an acceptable surgery time and hospital stay. In repeated non-conclusive biopsies in particular, low-field ioMRI offers a technique for arriving at a diagnosis ¹⁾.

1)

Burkhardt JK, Neidert MC, Woernle CM, Bozinov O, Bernays RL. Intraoperative low-field MR-guided frameless stereotactic biopsy for intracerebral lesions. Acta Neurochir (Wien). 2013 Apr;155(4):721-6. doi: 10.1007/s00701-013-1639-7. Epub 2013 Feb 23. PubMed PMID: 23435865.

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