Robotic neuronavigation system

Dlaka et al. present et al. a novel robotic neuronavigation system, RONNA G4, used for precise preoperative planning and frameless neuronavigation, developed by a research group from the University of Zagreb and neurosurgeons from the University Hospital Dubrava, Zagreb, Croatia. The aim of the study is to provide a comprehensive error measurement analysis of the system used for brain biopsy.

Frameless stereotactic robot-assisted biopsies were performed on thirty-two consecutive patients. Post-operative CT and MRI scans were assessed to precisely measure and calculate target point error (TPE) and entry point error (EPE).

The application accuracy of the RONNA system for TPE was 1.95 ± 1.11 mm, while for EPE was 1.42 ± 0.74 mm. The total diagnostic yield was 96.87%. Linear regression showed statistical significance between the TPE and EPE and the angle of the trajectory on the bone.

The RONNA G4 robotic system is a precise and highly accurate autonomous neurosurgical assistant for performing frameless brain biopsies [1].

1)
Dlaka D, Švaco M, Chudy D, Jerbić B, Šekoranja B, Šuligoj F, Vidaković J, Romić D, Raguž M. Frameless stereotactic brain biopsy: a prospective study on robot-assisted brain biopsies performed on 32 patients by using the RONNA G4 system. Int J Med Robot. 2021 Feb 16. doi: 10.1002/rcs.2245. Epub ahead of print. PMID: 33591608.