

# Ultrasound vs. iMRI for Intraoperative Imaging

Barak et al. (2021), in Journal of Neuro-Oncology

## Products

Ultrasound Navigation, BK Flex Focus 800 or bk 5000

## Hospital / Authors

Department of Neurosurgery, Yale School of Medicine, New Haven, USA

Barak, T.; Vetsa, S.; Nadar, A.; Jin, L.; Gupte T.P.; Fomchenko, E.I.; Miyagishima, D. F.; Yalcin, K.; Vasandani, S.; Gorelick, E.; et al. al., S.; Gorelick, E.; et al.

## Clinical Background

The maximum safe resection approach is effective in elderly glioblastoma patients, however surgical strategies remain to be optimized. While intraoperative MRI (iMRI) is currently considered the gold standard for intraoperative resection control, less resource-intensive Ultrasound guidance may eliminate disadvantages such as prolonged surgical time and thus the likelihood of increased postoperative complications.

## Aim of Study

The aim of study was to investigate whether patient outcomes differ between iMRI plus Ultrasound Navigation versus Ultrasound Navigation alone in elderly glioblastoma patients.

N = 48 patients, single center consecutive retrospective case series

## Results

- iMRI group was not superior in terms of overall survival (OS), Karnofsky Performance Score 6 weeks postoperative (KPS) and extent of resection (EOR)
- Length of surgery (LOS) was significantly shorter in Ultrasound Navigation alone group (189.7 ±47.11 min vs. 111.1 ±51.32 min)
- Multiple logistic regression analyses found LOS and hospital stay to be predictors for postoperative complications
- Complications occurred more than twice as often in the iMRI group than the Ultrasound Navigation alone group (though difference not statistically significant)

## Summary

- Compared to Ultrasound Navigation alone, **the addition of iMRI does not add any significant benefit in terms of OS, KPS postoperatively and EOR**
- Ultrasound Navigation **decreases the length of surgery by 42%** and thus **decreases the likelihood for postoperative complications – particularly in elderly patients**
- Due to its much shorter duration, elderly patients especially benefit from ultrasound navigation as intraoperative imaging