

Evidence Discussion (HD-9.2)

- MRI head for the initial imaging of patients with known seizure disorder requiring surgical planning to identify the seizure focus including tumor, hippocampal sclerosis and vascular lesions¹. Follow-up MRI after a previous standard protocol study if performed with special “Epilepsy Protocol” can provide additional information.¹
- FDG-PET/CT brain may be complementary as a functional tool to structural imaging using MRI to localize the focus of refractory seizure activity, with reported sensitivities of PET in the assessment of temporal lobe epilepsy ranging from 87% to 90% and extra-temporal lobe epilepsy ranging from 38% to 55%.¹
- PET/MRI, performed as MRI brain without contrast, or with and without contrast, co-registered with FDG-PET brain, increased the sensitivity of brain MRI in 60% of non-lesional patients and is therefore supported for pre-surgical evaluation of refractory seizures.²
- Ictal SPECT,³ Functional MRI (fMRI)⁴ and MRI brain co-registered with Magnetoencephalography (MEG)⁵ are also useful to further identify the seizure focus as well as eloquent areas of the cortex that are essential for language, motor function and memory in surgical candidates when done as a replacement for the higher risk Wada test or direct electrical stimulation mapping.

References

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