

IS VIDEO MONITORING NECESSARY BEFORE PERFORMING EPILEPSY SURGERY?

M.R. Sperling

Baldwin Keyes Professor of Neurology, Thomas Jefferson University, Philadelphia, PA, USA

The evaluation of a patient for epilepsy surgery requires a careful approach, utilizing a variety of methods. The evaluation process serves to identify an epileptogenic lesion that can be safely excised. The objective is to define a single structural brain lesion, which is epileptogenic. The neurological history and examination provide the most important information, yielding critical clues as to the location of the epileptogenic zone, which is the region responsible for seizures. Additional testing should assess brain structure and function to confirm the clinical localization. MRI, video-EEG monitoring, and neuropsychological testing are most commonly employed; other techniques, such as PET, SPECT, MEG, and advanced MR imaging modalities may yield useful supplemental information as well. The various tests have different sensitivities and specificities, and are often complementary.

However, in certain circumstances, such testing may provide redundant information. This is sometimes the case with video-EEG monitoring. In selected patients, video-EEG monitoring does not add useful information, and neither improves patient selection nor modifies a surgical recommendation. This occurs in some patients with classic medial temporal lobe epilepsy. For example, video-EEG monitoring is usually unnecessary in a patient with a remote history of febrile convulsions, who has only complex partial seizures with an epigastric aura, whose MRI shows unilateral mesial temporal sclerosis, and whose interictal EEG shows a consistent ipsilateral anterior temporal sharp wave. Similarly, the patient who has a focal localizing aura with a concordant structural lesion and appropriately localized interictal spike may not require video-EEG monitoring. Lastly, the scalp video-EEG can sometimes be misleading, leading to unnecessary intracranial EEG monitoring. This might occur in the first case, if the scalp video-EEG suggested seizure onset contralateral to the MRI and interictal EEG, for intracranial EEG almost certainly would confirm the initial localization.

Oftentimes, video-EEG provides crucial, non-redundant information and cannot be omitted. Nonetheless, physicians must balance their innate desire for more information with practicality, acknowledging that more information is not necessarily better information. This is the case with video-EEG monitoring, which is sometimes completely redundant. Moreover, if medication is tapered during video-EEG monitoring, the procedure poses a small risk of injury should a tonic-clonic seizure be provoked. Hence, video-EEG is sometimes unnecessary in subjects with a clear-cut history whose neuroimaging and interictal EEG are concordant with the clinical picture. It should be utilized for patients in whom the diagnosis remains doubtful.