

PRE-SURGICAL EVALUATION: THE ROLE OF THE NEUROPSYCHOLOGIST

As part of the pre-surgical evaluation, you will be referred to a neuropsychologist to complete a neuropsychological evaluation and a Wada procedure. A neuropsychologist is a professional who has advanced training in brain organization who specializes in the localization of brain dysfunction. The information obtained by the neuropsychologist is combined with the other medical information obtained during the remainder of your pre-surgical evaluation (e.g., inpatient hospitalization, EEG, MRI, PET) to determine your candidacy for neurosurgical intervention to alleviate your seizures.

The neuropsychological evaluation is a non-invasive procedure that is completed on an outpatient basis. This is a full-day evaluation that requires you to answer questions, complete activities, and perform some simple tasks. You may take breaks during the day to assure that you are able to perform at optimal levels. There are no dietary restrictions or alterations in your medication regime prior to the neuropsychological evaluation. The tests that you will be asked to complete are not ones that you “pass” or “fail”, but provide valuable information regarding localization of areas of your brain that may reflect relative weaknesses that may be consistent with your seizure disorder. Whereas the MRI is an excellent tool for localizing any structural damage and the EEG and the PET scan provide excellent localization of areas that reflect dysfunctional physiological functioning, the neuropsychological evaluation is needed to provide better understand how your brain is organized and localization of functional deficits (e.g., weaknesses with remembering things you were told, difficulty with flexibility in thinking).

After completing the neuropsychological evaluation, your neuropsychologist will also complete the Wada procedure. The Wada procedure, also known as the intra-carotid Amytal test, is completed in Neurosurgery or Radiology Special Procedures at Vanderbilt University Medical Center. This test is performed to determine the location of language and memory functions in the brain. There are restrictions in your diet prior to this procedure, as you will be asked to not eat or drink anything after midnight prior to your Wada procedure. We do ask that you take all of you seizure medications in the morning to avoid any seizure activity during the Wada testing, but please refrain from drinking more than only enough liquid to take your pills. You will not see your neuropsychologist as you arrive at Vanderbilt that morning, as he will be called closer to the time that your procedure is to begin.

The Wada procedure will take place in a sterile procedure room. The neuroradiologist will insert a catheter and sheath into your femoral artery, located near your upper inner thigh area. There may be some initial discomfort associated with the placement and removal of the sheath, but little discomfort is reported at other times. Once the catheter is inserted into your femoral artery, the neuroradiologist works the catheter into position in the internal carotid artery in your brain. The neuropsychologist will then ask you some simple questions to assess your language abilities, orientation, and memory. After this baseline data is obtained, the internal carotid artery is injected with Amytal, resulting in arrest of cerebral functioning in the hemisphere injected.

PRE-SURGICAL EVALUATION: THE ROLE OF THE NEUROPSYCHOLOGIST

PAGE 2

Typical procedure involves initial injection of the hemisphere thought to be the side that your seizures are coming from, with a subsequent injection to the opposite hemisphere. Once injected, the hemisphere injected will be “asleep” for several minutes. During this time, the neuropsychologist performs several activities to assess your ability to produce and understand speech, and encode and retrieve memories in the hemisphere that is unaffected by the injection of Amytal. The effect of the Amytal subsides in only several minutes, with most patients returning to baseline status in approximately 10 to 15 minutes. You will then be asked some questions and then the neuroradiologist will reposition the catheter to the opposite hemisphere, and the neuropsychologist will perform similar tasks with the other hemisphere. The Wada procedure allows the neuropsychologist to determine the dominant hemisphere for language and memory and to approximate the functional capacity of the opposite hemisphere in the absence of the injected hemisphere, providing an assessment and estimate of your post-operative functioning. Following the removal of the catheter from your femoral artery, the neuroradiologist will apply direct pressure for approximately 20 minutes, after which you will then be taken to the recovery room. While in recovery, you will be required to lie flat for approximately 6 hours, prior to your discharge to home. The physicians and nurses will instruct you on limitations and precautions following the Wada procedure.

The neuropsychological evaluation and the Wada procedures are vital in the localization of language and memory functions to assist the neurosurgical team in determination of the feasibility of temporal lobectomy for correction of his intractable seizures, while avoiding areas of his brain that would result in global aphasia and the inability to recall or encode memories if disturbed. These are not mental health procedures and have nothing to do with your emotional or psychiatric condition.

After you have completed all parts of your pre-surgical evaluation, your case will be presented at the Epilepsy Team Conference. This conference typically takes place on the 1st Friday of each month. Following your case presentation, you will receive a telephone call from either your neurologist or neurosurgeon explaining the recommendations of the Epilepsy Team. Should you complete the Neurosurgery, you will be referred back to your neuropsychologist approximately 2 months after your surgery to assess your abilities at that time.

As with any procedure, please feel free to discuss any questions or concerns over the neuropsychological evaluation or Wada procedure with your neuropsychologist.