Evaluating an Apparent Unprovoked First Seizure in Adults

Case Presentation

A 52 year old woman is brought to the emergency room after a witnessed seizure. She was shopping at the local mall when she was noted to fall to the ground suddenly and begin shaking her arms and legs. She had tongue biting and urinary incontinence. The episode lasted for 2 minutes. 911 was called and EMS arrived on the scene. The patient had stopped shaking though was confused. She was transported to the emergency department where she had no recollection of the event. Approximately 1 hour after the event her sister who accompanied her to the ED felt that she was back to her baseline. Neurology is called to evaluate the patient in the emergency department for the seizure. Further history obtained from the patient suggests that this is the first seizure she has had. She has no history of head trauma, no recent sleep deprivation, or changes in her medications. She has a history of diabetes, hypertension, and hyperlipidemia. Her medication regimen includes atenolol, insulin, and simvastatin. She has no past surgical history. She smokes 2 packs of cigarettes a day and drinks rare ETOH. There is no family history of seizures or other neurological conditions. She is married and works as a school teacher. A 14 point ROS is performed and is unremarkable except for constipation and rare headaches.

Vital signs showed a pulse of 88, BP 130/82 and respiratory rate of 16. Her neurological examination reveals a pleasant obese female in no acute distress. Her cardiac examination was normal and she had no bruits in the neck. Pulses were normal at the wrist and ankles. She is alert and oriented. Aside from having no memory of the event she has normal short and long term memory. She has no specific cognitive deficits on mini mental status testing. Her cranial nerves 2-12 are intact. Her motor examination reveals normal bulk , tone and strength in all 4 limbs. She has decreased pinprick to the ankles bilaterally with normal sensory testing otherwise. She has no difficulties with coordination or gait. Her reflexes are 2/4 throughout, ¼ at her ankles and toes are down-going.

Questions

1. What should be considered as part of the routine neurodiagnostic evaluation of adults presenting with an apparent unprovoked first seizure?
A. EEG
B. Head CT or MRI
C. Lumbar puncture
D. Complete blood count, electrolytes and toxicology screen
E. A and B are correct

The correct answer is E. EEG should be considered as part of the routine neurodiagnostic evaluation of adults presenting with an apparent unprovoked first seizure (Level B).[1] Brain imaging with CT or MRI should be considered as part of the routine neurodiagnostic evaluation of adults presenting with an apparent unprovoked first seizure (Level B).[2]

2. For adults presenting with a first seizure, a routine EEG revealed epileptiform abnormalities in approximately 23% of patients, and these were predictive of seizure recurrence. What types of abnormalities were considered significant in the diagnosis of epilepsy?
A) Spike or sharp waves
B) Focal slowing
C) Beta- rhythm
D) K- complexes
E) Triphasic waves

The correct answer is A. The abnormality considered as significant by authors was the presence of epileptiform activity in the form of spikes or sharp waves as interpreted by the local or reading electroencephalographer in patients clinically judged to present with a new onset seizure, evidence similar to that reported for children.
3. Significant abnormalities seen on neuroimaging that could affect a patient with an apparent unprovoked first seizure would be:
A) Brain Tumor
B) Vascular lesion
C) Cerebral cysticercosis
D) All of the above

The correct answer is D. Of the seven Class II studies that considered the yield and value (with or without contrast agents) of the CT or MRI in adults initially presenting with a seizure (1,092 patients) the CT was reported as abnormal in 1% to 57% (average yield 15%) and was significantly abnormal in 1% to 47% (average 10%). These significant abnormalities affected patient management and included previously unrecognized brain tumors, vascular lesions, and cerebral cysticercosis.

4. Lumbar puncture is not recommended in the routine evaluation of an adult with an apparent unprovoked first seizure unless there are specific circumstances such as:
A) Recent diagnosis with hypothyroidism
B) Recent weight loss
C) Fever
D) Recent medication changes
E) Family history of seizures

The correct answer C. In the adult initially presenting with an apparent unprovoked first seizure, lumbar puncture may be helpful in specific clinical circumstances, such as patients who are febrile, but there are insufficient data to support or refute recommending routine lumbar puncture (Level U).[1]

5. Although there is insufficient data to support routine toxicology screening in an adult with an apparent unprovoked seizure, toxicology may be helpful in specific cases.

Seizures may be reported as a consequence of drug intoxication with the following agents:

A) Tricyclic antidepressants and cocaine
B) Atenolol and insulin
C) Wellbutrin and ibuprofen
D) Simvastatin and atenolol
E) Levothyroxine and simvastatin

The correct answer is A. Seizures are reported as a consequence of drug intoxication particularly with tricyclic antidepressants, cocaine, and other stimulants. In a series of patients with acute medical complications of cocaine intoxication, seizures, often first seizures, accounted for 10% of the presenting symptoms.

ICD-9-CM[2] Coding

In the case above the patient presents with a seizure. Although several other conditions are described appropriately, none are specifically addressed here. The cause of the seizure is not determined here. Therefore the ICD-9-CM (diagnosis) code[2] used both for the testing and the visit would be:

780.39 Other convulsions

The **345.xx codes, Epilepsy and recurrent seizures**, may be used if the patient had presented with recurrent seizures that now fit the definition of epilepsy.

In the case of recurrent seizures from a cause not felt to be epilepsy, then 780.39 would still apply until the cause is known. If the cause is known and it is not epilepsy, then the cause of the seizure would be sequenced (listed) first. This applies even if the cause is alcohol or drug withdrawal the codes for which (291.81 and 292.0) reside in the Mental Disorders chapter. However, if the cause is a drug or substance, then the effect (780.39) is listed first and the appropriate E-code (external cause code) for the drug is listed second.

Consult in the Emergency Department (E&M)

CPT® Code 99241	**Focused History** (chief complaint, 1-3 components of HPI) **Focused Exam** (limited to affected body area or organ system) **Straightforward Medical Decision** (min number of diagnoses or management options, min or no data to be reviewed, min risk of complications) **Self Limited or Minor Problem** (problem does not require physician presence or may involve supervision by a physician)

CPT® Code 99242	**Expanded Problem Focused History** (chief complaint, 1-3 components of HPI, 1 review of systems) **Expanded Problem Focused Exam** (affected body area or organ system, other symptomatic or related body area) **Low Complexity Medical Decision Making** (limited number of diagnoses or management options, limited data to be reviewed, low risk of complications) **Low or Moderate Severity Problem**
CPT® Code 99243	**Expanded Problem Focused History** (chief complaint, 1-3 components of HPI, 1 review of systems) **Expanded Problem Focused Exam** (affected body area or organ system, other symptomatic or related body area) **Moderate Complexity Medical Decision** (multiple diagnoses or management options, moderate data to be reviewed, moderate risk of complications) **High Severity Problem**
CPT® Code 99244	**Detailed History** (chief complaint, 4 components of HPI, 2-9 review of systems, directly related family or social history) **Detailed Examination** (extended examination of affected and other body areas) **Moderate Complexity Decision Making** (multiple diagnoses or management options, moderate data to be reviewed, moderate risk of complications) **High Severity Problem**
CPT® Code 99245	**Comprehensive History** (chief complaint, 4 components of HPI, 10 or more review of systems, complete family or social history) **Comprehensive Examination** (complete single system detailed evaluation or complete multiple system evaluation) **High Complexity Medical Decision** (extensive diagnoses or management options, extensive data to be reviewed, high risk of complications) **High Severity Problem**

Note: If the patient is admitted the neurologist can use the inpatient consult codes instead

E&M Coding Discussion

The correct E&M code for this patient encounter in the ED is 99245. Consults in the ED are considered an outpatient encounter unless the patient has already been admitted in which case the code should be an inpatient consultation level 5 code. The neurologist was asked to see the patient for a first seizure (chief complaint), obtained at least 4 components of the HPI (much more than 4 points in this case), 14 points of the ROS and a complete family and social history. The examination satisfied 25 points of the Neurological Single System Examination. Medical Decision Making was high complexity because of an abrupt change in neurologic status, the request for extensive testing (in this case, EEG, imaging study of the brain, blood work, toxicology screen), and the high risk of the underlying condition (propensity for additional seizures).

1. Krumholz A, Wiebe S, Gronseth G, et al. Practice Parameter: Evaluating an apparent unprovoked first seizure in adults (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Epilepsy Society. Neurology® 2007;69;1996-2007.
2. Centers for Disease Control and Prevention. International classification of diseases, ninth revision, clinical modification (ICD-9-CM). *www.cdc.gov/nchs/icd/icd9cm.htm*.

Disclaimer

This statement is provided as an educational service of the American Academy of Neurology. It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use a specific procedure. Neither is it intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on all of the circumstances involved.