Focal dyscognitive seizures (formerly known as complex partial seizures) begin in a specific location of the brain and can affect a person’s level of consciousness. People who experience focal seizures often report feeling an aura (e.g., smell, taste, or a visual disturbance) immediately preceding the onset of the seizure. When a person has experienced a seizure, this altered physiological state is known as the ictal phase. The experience after a seizure (known as the postictal phase) can be diverse for people living with epilepsy, including confusion, delirium, and psychosis. Patients in the postictal phase can represent a risk to themselves and/or to others in the immediate area. In the healthcare setting, these high-risk behaviors require the expertise of advanced and expert nursing care that can manage the associated risks while maintaining the integrity of the person involved. The purpose of this article is to present 3 case studies of people who experienced focal dyscognitive seizures. The intensive and advanced nursing care provided for these people during the seizure and in the postictal stage is elucidated.

Background

Recognition of Focal Dyscognitive Seizures

Seizures have a vast semiology, and the more subtle signs can go unrecognized by the naive observer. Accurate assessment of seizure type and classification is important for identifying appropriate treatments. An epileptic seizure occurs because of abnormal and excessive neuronal discharge, where the clinical manifestation will depend on the area of the brain affected. Generalized seizures involve simultaneous involvement of both brain hemispheres where focal seizures involve neuronal firing beginning in 1 small area. The typical and stereotyped features of a generalized seizure that manifest as violent convulsions, jerking and stiffening of the limbs, tongue biting, foaming at the mouth, incontinence, and loss of consciousness are readily
identified by nurses. Focal seizures can manifest as many different types of symptoms, each person having their own individual experience of a focal seizure. The International League Against Epilepsy has updated the terminology classifying seizures; focal seizures are no longer distinguished by their different types (eg, complex partial and simple partial) but instead are determined by their presentation.5 For example, distinction is given in regard to the impairment to the patient’s level of consciousness and other dyscognitive features or observable motor or autonomic components.

Focal seizures are short-lived and often referred to as an aura or warning sign, preceding a focal dyscognitive or generalized tonic clonic seizure (known as the ictal phase). The focal dyscognitive seizure also displays subtle features, but patients experience an altered state of consciousness and can present as blank staring, daydreaming, confusion, wandering, and unaware of surroundings.3 Focal seizures can spread to involve both hemispheres of the brain, developing into a generalized tonic clonic seizure. These were previously referred to as secondary generalization;4 however, they are now referred to as bilateral, convulsive seizures involving tonic, clonic, or tonic and clonic components.5

**What Happens in a Hospitalization for Visual Image and Electroencephalographic Monitoring of Seizures?**

A hospital admission is sometimes required to obtain an accurate assessment and diagnosis of the patient’s seizures, especially in patients with medically intractable epilepsy.6 Unlike other interventions/admissions where the focus of seizure prevention is central, the focus of this admission involves inducing the typical seizure to capture it for the purpose of recording a visual image and obtaining an electroencephalogram (EEG). During these admissions, it is imperative for the nurse to have a clear understanding of individual triggers for seizures and have clear expectations of the level of risk for both the patient and the staff. Inducing seizures involves reducing or ceasing current antiepileptic medication in addition to creating a fatigue state through exercise and sleep deprivation because these are known triggers for seizure activity. Patients are usually admitted for up to 5 days and placed in a room equipped with visual recording equipment and EEG monitoring. This close monitoring, which usually occurs in an epilepsy monitoring unit (EMU) staffed by trained nurses and technicians, enables an accurate diagnosis and can inform appropriate treatment plans, for example, whether surgery is possible to improve medically intractable focal seizures and/or which medications are appropriate.7

When patients are admitted to the EMU, the goal is to capture an accurate 24-hour visual image, whereby patients may be instructed to leave their lights on, to wear warm dark clothing, and often to remove the bed linen. Patients are also fitted with intravenous (IV) access, usually on the hand, to enable the swift administration of a radioactive pharmaceutical when they are experiencing a seizure. The radioactive pharmaceutical is administered to the patient (by a nurse specifically trained in the delivery and management of radioactive pharmaceutical) in the ictal phase because its properties allow for rapid cerebral perfusion. After which, the localization of a potential seizure focus can only be seen using a single-photon emission computed tomography (SPECT) image.8

While admitted in the EMU, patient safety is paramount, and the 24-hour monitoring is undertaken by experienced neuroscience nursing staff.9 Considerations for patients in the EMU are an increased risk of falling, aspiration, asphyxiation, injuries, cardiorespiratory distress, postictal psychosis/confusion, and death.5,9 Some measures used to prevent these risks include ensuring the environment is safe, for example, bed railings, mats next to bed, and functioning oxygen and suction, including checking whether the patient’s IV access is patent.6 Sometimes, other measures include ensuring that the patient remains with a family member at all times and their mobility is limited.7

**Postictal Risks**

The patient in the postictal period (ie, after the seizure) will display some neurological disturbance (eg, confusion, sleepiness, unresponsiveness) for a short period because the brain is returning to normal neuronal activity from the hyperexcitation in the ictal phase.5 Some patients may develop postictal psychosis.10 The prevalence of postictal psychosis is more common in temporal lobe epilepsy estimated at 7%, but generally, it is estimated at approximately 2%.11 The patient may also display some emotional distress and have the potential for aggression.3 In the ictal phase, the activity resulting in inadvertent automatisms, such as shouting, spitting, violence to property, pushing, and shoving, or uncontrollable limb movements could be interpreted as violent.12 When a patient exhibits aggressive or agitated behavior, containment for his/her own safety and the safety of others can also exacerbate the aggression.13

**Clinical Case Studies**

Three case studies are offered to illustrate specialist nursing care provided to people experiencing seizures during their admission period. The case studies presented used an analytical approach, whereby a clinical scenario or problem is broken down into individual components to solve it. In the section that follows, 3 cases are presented, where the important elements
are identified and described, each element is evaluated, and appropriate nursing implications were discussed. These case presentations were drawn from a medium-sized private hospital located in Melbourne, Australia, and patient pseudonyms have been used to protect patients’ identity.

**Case Study 1: “Classic Presentation”**

Tom, a 27-year-old man, experienced blank spells from childhood. At the age of 10 years, he had 1 generalized seizure, and antiepileptic medications reduced his seizures, but he continued to experience the blank spells. His blank spells have increased in frequency for the past 12 months, and Tom was admitted to the EMU for further investigation. His magnetic resonance imaging (MRI) appeared normal, and a positron emission tomography (PET) scan revealed some hypometabolism on the right side of his brain. Tom had more than 20 electrographical seizures occurring mostly while asleep. On EEG, he had frequent interictal discharges, indicating seizure activity predominately in the left temporal region, suggestive of a seizure focus originating from the temporal lobe. His focal seizures, evidenced by subtle automatisms, quickly developed into a bilateral, convulsive seizure involving both tonic and clonic components. On this day, Tom experienced this type of seizure before the nurse could inject the radioactive isotope.

**Implications for Nursing Practice**

Prompt assessment is required to capture the focal seizure ultimately before it progresses to a bilateral, convulsive seizure involving both tonic and clonic components. This is particularly important if the diagnostic administration of a radioactive isotope is required for the purposes of SPECT imaging. The nurse needs to identify the commencement of the seizure to enable the administration of the radioactive isotope during this short window period. Although these patient seizures have a focal origin, they can rapidly progress to a bilateral state, which can result in airway compromise and injuries. The nurse must use well-developed visual assessment skills in addition to the EEG tracing in these cases. In the hospital environment, the usual nursing care management involves risk management as a foundation to care to reduce the risk of falls, burns, and other accidents. For example, when the person is experiencing generalized seizures, the nurse would attempt to roll the patient to 1 side to avoid airway compromise while protecting the limbs from hitting other objects. An epilepsy management plan involving the administration of medication to control the seizure is, for most cases, prescribed by medical staff and subsequently followed by nursing staff. If the seizure is prolonged and not self-terminating (continuing beyond 5 minutes), if the seizure stops but the person does not regain consciousness within 5 minutes, or if another seizure begins within quick succession, nursing care escalation would need to occur.14 Nursing care escalation includes such activities as the administration of antiepileptic medications, risk management (such as working in pairs), IV access and patency, and preplanned interventions for specific patient probabilities.

**Case Study 2: “The Wanderer”**

Bob, a 54-year-old man, has experienced focal seizures since the age of 18 years. He required an admission for a potential right temporal lobectomy. His MRI showed no abnormalities, and his PET scan showed that he had moderately reduced uptake of the radioactive isotope in the right temporal lobe, which is not diagnostic, suggesting that further investigations may be warranted, for example, an ictal SPECT scan. During his admission, he had 3 seizures, which were captured on video recording. Timely injection of the radioactive pharmaceutical, an often difficult task, was further complicated due to Bob’s seizure behavior, which was to walk about aimlessly. Nursing staff coordinated an individualized approach to ensure safe injection of the radioactive substance. When Bob was experiencing a seizure, a nurse would walk alongside him to steady his arm, whereas a second nurse walking alongside Bob wearing appropriate personal protective equipment quickly and safely injected the radioactive isotope.

**Implications for Nursing Practice**

In this scenario, Bob, while wandering aimlessly, could not be reasoned with during seizures, recognizing a number of implications for specialized nursing practice. First, the nurses needed to ensure the patency of the IV device for quick and safe access during the seizure, preventing the risk of spillage or extravasation of the radioactive pharmaceutical. Bob also showed signs of agitation, which may be perceived as aggression, and confronting him risked injury to himself or others or damage to property. There also remained the potential for Bob to abscond if he was unable to be contained until fully recovered from the seizure. The specialist neuroscience nurse needs to possess excellent and accurate assessment and evaluation skills to detect seizures such as Bob’s that may not be so obvious. The nurse will need to be mindful to redirect wandering patients experiencing focal dyscognitive seizures like Bob rather than restrain them to minimize risk to the patient, property, or others. In this case, Bob was redirected by nurses allowing him to wander but obstructing potential paths of travel (ie, elevator doors, closing doors). Although his consciousness is altered/impaired, addressing him in a respectful and clear
manner is paramount to protect his dignity. Finally, central to the advanced communication skills used by these nurses is the reassurance and comfort they provide patients and families minimizing any negative impacts, including anxiety, after the seizure.

**Case Study 3: “The Hard to Detect Seizure—Working With the Family and Patient as Experts”**

Mary is a 50-year-old married woman who has had epilepsy since the age of 10 months. She experiences focal dyscognitive seizures emanating from the left temporal region of the brain. The MRI was suspicious of a structural lesion, and the PET scans were positive for left temporal hypometabolism, suggesting intractable epilepsy. While in the hospital for investigation, Mary’s husband who was visiting her noticed a change in her state of awareness and quickly indicated to the nurses that Mary was experiencing a typical event similar to what she had been having at home. To the unfamiliar observer, this event may well have gone unnoticed because Mary’s outward manifestation of the seizure was subtle in presentation.

**Implications for Nursing Practice**

In Mary’s case, nursing staff obtained a comprehensive history from her and her family. The family described very subtle signs of altered awareness and responsiveness, which were difficult to detect to the unwary. The family, as an “expert” in depicting seizures, was encouraged to stay with Mary during the hospital admission. A schedule was established between family members to assist nursing staff with seizure identification. A patient/family communication board was used for the family to “handover” information. The advanced skills of the neuroscience nurse in the assessment of the symptoms of a seizure that are subtle are central to timely care. That is, the misinterpretation of subtle seizure symptoms can lead to misunderstandings about behavior, diagnosis, nursing care, medical care, and development of any other therapeutic interventions.

**Discussion and Conclusions**

The neuroscience nurse is adaptive and responsive, providing flexible, timely nursing care. The case examples in this article illustrate the unique and unpredictable nature of providing care to patients experiencing focal dyscognitive seizures. Neuroscience nurses show specialized nursing practice whereby they maximize the impact of their practice experience to the benefit of patient outcomes. In addition, identifying where the patient and their family are experts in their own care is integral to a coordinated and patient-centered approach to care delivery, such that nurses are well placed in fostering the participation of patients in their own care. Patient participation is complex, and nurses need to juggle each patient’s risks and individualities, emphasizing the need for sound assessment skills.15

Also considered specialized practice is the identification of risk factors in seizure disorders. The identification of seizure activity and its associated risks can be complex, especially for those individuals with an unexpected presentation. Risks that exist for the person with seizures include aggression potential, postictal psychosis and delirium, falls, and other unexpected injuries for the patients/others or damages, for example, property damage. Early recognition is integral to timely interventions, which is often difficult in seizures with subtle presentation. As Gilmore et al.16 comment, a level of suspicion may also be beneficial on the part of the clinician. Meaning that neuroscience nurses not only are highly vigilant and cautious but also often rely on instinct that they develop through extensive professional experience.

This clinical update reported on 3 case studies highlighting the specialized nursing skills required to care for patients experiencing focal seizures. Focal seizures, as evidenced by the 3 case studies in this article, can be subtle in their onset and manifest with complex and individual symptoms. Monitoring patients for the deliberate onset of seizures, neuroscience nurses are placed in nontypical nursing situations, thus managing risk in unpredictable conditions. Nurses in this area also require the understanding that the patient and their family are vital members of the healthcare team to ensure best possible safety outcomes for the patient and others.

**References**


