Identifying and differentiating stroke and stroke mimics

Elmer Javier Catangui

Abstract
Stroke mimics are common differential diagnoses of stroke. This article describes common stroke mimics and their presentations. It provides nurses with an overview of how to distinguish stroke mimics from a stroke, and practical information on triaging and diagnosing stroke and stroke mimics in the clinical setting. Stroke and stroke mimics have several similarities and several important differences. A comprehensive patient history, clinical examination, use of assessment tools and the results of medical imaging can guide nurses to differentiate stroke from a stroke mimic.

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Keywords
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Stroke occurs when the blood supply to part of the brain is cut off, either because of a blockage caused by a blood clot (ischaemic stroke) or by bleeding (haemorrhagic stroke). It is rarely a straightforward diagnosis. There are several differential diagnoses whereby patients present with stroke-like symptoms but, after comprehensive history-taking, clinical investigations and a physical examination, are found to be experiencing a stroke mimic. A stroke mimic is defined as a non-vascular disease that presents with stroke-like symptoms, often indistinguishable from an actual stroke (Long 2016).

Stroke mimics account for a significant proportion of patients presenting with stroke-like symptoms. Accurate and timely diagnosis of stroke is essential to initiate prompt treatment and management. Evidence shows that provision of specialist stroke care at an early stage can improve a patient’s functional outcomes (De Reuck 2006). However, if a stroke mimic is misdiagnosed as a stroke, it could potentially lead to unnecessary, costly and harmful investigations and treatments (Long 2016).

The aim of this article is to describe stroke mimics and their presentations, to differentiate stroke mimics from a stroke and to provide nurses with practical information on triaging and identifying stroke and stroke mimics in the clinical setting. The article aims to use a case study approach to improve nurses’ understanding of some of the clinical presentations of stroke mimics. Six cases are presented, each of which provide a brief patient history and differential diagnoses. In each case, a nursing note is included to provide practical advice for nurses on how to differentiate a stroke from a stroke mimic.

Stroke mimics
The most common types of stroke mimic are seizures, syncope (sudden and transient loss of consciousness that occurs when blood pressure falls), sepsis, functional disorders such as conversion disorder, primary headache disorders such as migraine, brain tumour and metabolic disorders such as hypoglycaemia (Fernandes et al 2013, Martel et al 2015). Table 1 outlines the common stroke mimics.

Another form of stroke mimic is conversion disorder, which is a functional neurological disorder. The most common symptoms in conversion disorder are non-epileptic attacks (seizures that appear similar to epileptic seizures but are not caused by abnormal electrical...
activity in the brain) and weakness, especially in stressful situations, which may be mistaken for epilepsy or stroke (Caruso and Manganotti 2016). Distinguishing these types of stroke mimics from stroke can be challenging because of the complexity of symptoms.

A patient experiencing a stroke mimic may present with symptoms that are similar to those of stroke, such as facial weakness, unilateral limb weakness, and visual and speech disturbances. Patients presenting with a stroke mimic are usually younger than patients who have had a stroke (usually under the age of 50 years) (Vroomen et al 2008); are more likely to be women than men; usually have no risk factors for stroke; and often have a family history of psychiatric disorders (Caruso and Manganotti 2016). Table 2 lists the differences between stroke and stroke mimics.

A clinical assessment consisting of a patient history and neurological examination is vital in identifying stroke mimics. It can be challenging to obtain a history from the patient because they may have impaired speech, altered cognitive status and/or there may be no witnesses to the initial event (Vilela 2017). Differentiating stroke from stroke mimics can also be challenging because, in the case of stroke, it is crucial to obtain the correct diagnosis quickly so that appropriate treatment can be commenced immediately. A delay in arriving at the correct diagnosis could put patient safety at risk by delaying appropriate treatment or providing inappropriate management as a result of misdiagnosis. Patients with a stroke mimic may be given inappropriate treatment such as thrombolysis (a clot-busting therapy) as a result of being misdiagnosed with a stroke (Brunser et al 2016). Guillan et al (2012) found that 1-14% of patients with stroke mimics are inappropriately treated with thrombolytic therapy, which is usually safe but may cause bleeding.

The direct and indirect costs of admitting patients to hospital with a condition that mimics a stroke could be similar to or higher than those associated with patients who have had a stroke because of the acute care that they will receive in an acute stroke unit, including treatments and investigations. Dawson et al (2016) found that one in four patients admitted to hospital with suspected stroke were later diagnosed with a stroke mimic instead of a stroke; these patients had a median length of stay of one day, with a high rate of magnetic resonance imaging (MRI) (57%) and bed occupancy (8-17% of the stroke unit capacity).

### TABLE 1. Common stroke mimics

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage (%) of stroke mimics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seizure</td>
<td>20</td>
</tr>
<tr>
<td>Syncope</td>
<td>15</td>
</tr>
<tr>
<td>Sepsis</td>
<td>12</td>
</tr>
<tr>
<td>Functional disorders, for example conversion disorder</td>
<td>9</td>
</tr>
<tr>
<td>Primary headache disorders, for example migraine</td>
<td>9</td>
</tr>
<tr>
<td>Brain tumour</td>
<td>7</td>
</tr>
<tr>
<td>Metabolic disorders, for example hypoglycaemia</td>
<td>6</td>
</tr>
<tr>
<td>Neuropathy</td>
<td>4</td>
</tr>
<tr>
<td>Peripheral vestibular disorder</td>
<td>4</td>
</tr>
<tr>
<td>Dementia</td>
<td>3</td>
</tr>
<tr>
<td>Extradural or subdural haematoma</td>
<td>2</td>
</tr>
<tr>
<td>Drug and alcohol intoxication</td>
<td>2</td>
</tr>
<tr>
<td>Transient global amnesia</td>
<td>2</td>
</tr>
<tr>
<td>Other diagnosis (Fernandes et al 2003)</td>
<td>6</td>
</tr>
</tbody>
</table>

Differentiating stroke and stroke mimics

The following case studies describe the differential diagnoses of six patients presenting with stroke-like symptoms. Patient names have been changed to maintain confidentiality.

**Case study 1 – migraine**

Lucy, a 38-year-old woman, was admitted to the emergency department because she was seeing flashing lights and had subsequently developed a headache and right hemiplegia (paralysis on one side of the body). After 60 minutes, there was a complete resolution of symptoms. Results of a computed tomography (CT) scan were unremarkable. Lucy’s clinical presentation suggested that she had experienced a migraine. Migraine is characterised by a typical headache with a visual aura, such as flashing lights or zigzag patterns, and other changes in vision (Walker and Raynovich 2011). Stroke may present with headache; however, a prominent headache suggests a diagnosis other than ischaemic stroke (Walker and Raynovich 2011).

Lucy may have been experiencing hemiplegic migraine, which involves weakness on one side of the body. This symptom may last from five minutes to three days (Headache Classification Committee of the International Headache Society 2013, Kazemi et al 2014). This type of migraine can be particularly frightening for patients because the symptoms are similar to a stroke; however, hemiplegic migraine usually develops slowly, whereas a stroke is usually a sudden event (Gaur et al 2013). A migraine may be misdiagnosed as a transient ischaemic attack (TIA) because there is usually resolution of symptoms within...
24 hours in both conditions. A TIA, sometimes called a ‘mini-stroke’, is a temporary disruption in the blood supply to the brain, often lasting for less than 30 minutes (Nadarajan et al 2014). A TIA is a warning sign that a stroke may occur unless preventive steps are taken; therefore, all patients with a suspected TIA should be assessed by a neurology specialist (Catangui and Slark 2012a).

**Nursing note**

Taking the patient’s history and/or family history of migraine is vital when assessing a patient with a suspected stroke who presents with a headache. In addition, it is essential to quickly but comprehensively check for stroke risk factors. A lack of risk factors for stroke, a family history of migraine, and a patient history of similar attacks would suggest a migraine (The Stroke Association 2017). Migraine disproportionately affects women – who are affected three times as often as men – with peak incidence around the age of 40 years (Vinson 2002, Martel et al 2015).

**Case study 2 – Todd’s paresis**

Glenn, a 60-year-old man, was admitted to hospital because he had been experiencing intermittent episodes of confusion. He had a family history of hypertension and ischaemic heart disease. He had been a smoker for 20 years. On admission, he had three seizures, each lasting for about two minutes, and he immediately developed symptoms of right facial asymmetry, right hemiparesis (weakness affecting one side of the body) and aphasia (impaired language). A CT scan showed no significant findings. Glenn was diagnosed with Todd’s paresis. This is a condition characterised by a short episode of paralysis that occurs after a seizure. Seizures are rare during acute onset of stroke; however, research has found that seizures occur within seven days in about 5% of patients with acute stroke, with the predictive factor being haemorrhagic stroke (Alberti et al 2008). The cause of paralysis after a seizure could be related to an irritation of the cerebral function. The aetiology of Todd’s paresis is unclear (Degirmenci and Kececi 2016).

**Key points**

- A patient experiencing a stroke mimic may present with symptoms that are similar to those of stroke, such as facial weakness, unilateral limb weakness, and visual and speech disturbances.
- The onset of symptoms of stroke mimics usually occur progressively, whereas the onset of stroke is usually acute. Stroke mimics are usually non-vascular in origin and are not frequently associated with cardiovascular risk factors such as smoking, obesity and hypertension.
- Misdiagnosis of a stroke or a stroke mimic could potentially compromise patient safety by delaying appropriate treatment or prompting the commencement of inappropriate invasive procedures and medical management.
- A clinical assessment consisting of a patient history and neurological examination is vital for identifying stroke mimics.

**TABLE 2. Differences between stroke and stroke mimics**

<table>
<thead>
<tr>
<th></th>
<th>Stroke</th>
<th>Stroke mimics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>Vascular</td>
<td>Non-vascular</td>
</tr>
<tr>
<td><strong>Onset</strong></td>
<td>Sudden and acute onset</td>
<td>Progressive or gradual onset, for example Guillain-Barré syndrome or a space-occupying lesion such as a brain tumour</td>
</tr>
<tr>
<td><strong>Duration of stroke-like symptoms</strong></td>
<td>Persist beyond 24 hours and leave irreversible brain damage</td>
<td>Temporary, lasting from a few hours to 48-72 hours, for example migraine or Todd’s paresis (weakness affecting part of the body after a seizure)</td>
</tr>
<tr>
<td><strong>Medical imaging findings using computed tomography or magnetic resonance imaging scans</strong></td>
<td>Findings will indicate either ischaemic or haemorrhagic stroke</td>
<td>Normal findings, for example in hypoglycaemia or syncope. Mass visible in the case of a brain tumour</td>
</tr>
<tr>
<td><strong>Presentation of stroke symptoms</strong></td>
<td>Facial asymmetry, hemiparesis, aphasia, ataxia and visual deficits</td>
<td>Similar to stroke</td>
</tr>
<tr>
<td><strong>History taken from the patient and their family</strong></td>
<td>Presents a clear description of stroke symptoms, reporting the sudden onset of neurological deficits</td>
<td>Does not present a clear description of stroke symptoms, for example the patient has a long-term history of intermittent symptoms of facial drooping or ‘pins and needles’ in their upper or lower extremities</td>
</tr>
<tr>
<td><strong>Risk factors for stroke, including excessive alcohol consumption, hypertension, obesity, diabetes mellitus, ischaemic heart disease and previous history of stroke</strong></td>
<td>Commonly present</td>
<td>Less likely to be present</td>
</tr>
</tbody>
</table>
The duration of Todd’s paresis is brief. Paresis can persist from half an hour to 36 hours, with an average duration of 15 hours (Rolak et al 1992, Degirmenci and Kececi 2016), whereas a longer duration was reported in patients who have had a stroke with resulting structural damage in the seizure-generating hemisphere (Widdess-Walsh and Devinsky 2010, Degirmenci and Kececi 2016). A seizure at the onset of stroke symptoms is a contraindication to thrombolytic therapy because of the high risk of intracranial haemorrhage (Adams et al 1996, Long 2016).

**Nursing note**
If the paralysis after the seizure persists for more than 48 hours, it may suggest conditions other than Todd’s paresis, such as stroke. Most seizures associated with haemorrhagic stroke occur at onset or within the first 24 hours (Lambakis and Lancman 1998, Silverman et al 2002). The cause of seizure initiation by haemorrhage is not fully established; however, products of blood metabolism, such as haemosiderin, may cause a focal cerebral irritation leading to seizures (Burn et al 1997, Silverman et al 2002). Overall, a post-stroke seizure is a consequence of cellular biochemical imbalances leading to electrically irritable brain tissue (Heiss et al 1992, Luhmann 1996, Boovalingam et al 2012).

**Case study 3 – hypoglycaemia**
Mary, a 55-year-old woman, presented to the emergency department with sudden onset of aphasia and hemiplegia in her right arm. She had a history of diabetes mellitus and ischaemic heart disease. Her blood glucose level was 1.8 mmol/L. Her symptoms gradually improved after 30mL of 50% dextrose followed by an infusion of 10% dextrose were administered. Mary had experienced severe hypoglycaemia. An episode of transient hypoglycaemia often has stroke-like features such as hemiplegia and aphasia (Andrade et al 1984, Wallis et al 1985, Ay et al 1999, Agrawal et al 2014). The brain uses but does not store glucose, therefore hypoglycaemia can alter cerebral brain function, causing stroke-like symptoms. Hypoglycaemia-induced stroke symptoms usually begin to resolve immediately with the administration of intravenous (IV) glucose (Agrawal et al 2014), but this usually takes several hours to fully resolve (Wallis et al 1985, Agrawal et al 2014).

**Nursing note**
It should be routine practice to check the blood glucose levels of all patients suspected of having a stroke upon admission to hospital. The ‘airway, breathing, circulation, don’t ever forget glucose’ (ABC-DEFG) approach can be used to remember this (Fernandes et al 2013).

**Case study 4 – Guillain-Barré syndrome**
John, a 65-year-old man, was admitted to hospital because he had been experiencing flu-like symptoms and progressive bilateral leg weakness and dysarthria (motor speech disorder) for one week. He had a history of hypertension and inflammatory bowel disease. All stroke investigations, such as a CT and MRI scans, carotid duplex (a scan of the internal carotid arteries) and echocardiogram (ultrasound of the heart) were unremarkable. John was diagnosed with Guillain-Barré syndrome and the stroke team transferred him to a critical care unit. Guillain-Barré syndrome is a peripheral nervous system disorder characterised by ascending symmetrical paralysis (Ropper 1992, Abbas et al 2014). It is a life-threatening condition that affects autonomic functions of the body such as heart rate, perspiration, blood pressure, pupillary function and bowel sphincter function; therefore, it is crucial to monitor patients for signs of respiratory failure (Abbas et al 2014). Between 10% and 30% of patients with Guillain-Barré syndrome require intensive care and mechanical ventilation (Estridge and Iskander 2015). On rare occasions, Guillain-Barré syndrome can also present with motor and sensory symptoms that mimic a stroke.

**Nursing note**
Guillain-Barré syndrome presents with progressive neurological symptoms, whereas stroke usually has a sudden onset. A person experiencing a stroke will present with unilateral, not bilateral, weakness. A stroke is vascular in origin. The cause of Guillain-Barré syndrome is idiopathic; however, factors such as viral or bacterial infections may precipitate Guillain-Barré syndrome. Other examples of neurological conditions that can mimic stroke include multiple sclerosis, encephalitis, meningitis and brain abscesses (Walker 2011). When caring for patients with neurological disorders, the main nursing priorities include assessing their neurological status, monitoring vital signs, preventing injury and pressure ulcers, and supporting rehabilitation.

**Case study 5 – brain tumour**
Colin, a 50-year-old man, attended hospital with a one-week history of confusion and right hemiplegia. He had a history of prostate cancer. On his admission to hospital, he had stable neurological observations. A CT scan showed the presence of a brain tumour. Brain metastases may create a lacunar infarct (a small stroke) and patients commonly present with ataxia (lack of muscle coordination) or motor hemiplegia (Heiss et al 1993, Hatzitolios et al 2008). The acute onset of neurological deficits in patients with primary brain tumours can be secondary to tumour progressions such as oedema, necrosis and haemorrhage (Obied et al 2010). The use of CT or MRI scans can assist in distinguishing a stroke from a brain tumour.

**Nursing note**
The nurse’s role in taking a history from patients presenting with stroke-like symptoms is crucial. It is important to ask patients and their families if they have any history of cancer. Use of CT or MRI scans should be considered the gold standard for all suspected strokes or brain tumours. Moreover, nurses should be familiar with common findings in these scans, such as recognising a bleed, ischaemic stroke or brain tumour.
Case study 6 – syncope
Cecile, a 56-year-old woman, presented in the emergency department with a history of brief blurred vision followed by a sudden onset of loss of consciousness that lasted for 30 seconds. She had a previous history of ischaemic heart disease, hypotension and TIA. A CT scan did not show any remarkable findings. Her initial blood pressure reading was 80/60mmHg. Cecile had experienced a syncope. This causes a brief interruption to and decrease in cerebral perfusion, which usually completely resolves within 30 seconds (Lemonick 2010). A history of hypotension, ischaemic heart disease and previous similar events are common prompts to consider syncope as a differential diagnosis.

Nursing note
Syncope is rare in stroke. Potential causes of a transient loss of consciousness include hypotension, vasovagal stimulation and heart disease. It is essential for nurses to check patients’ vital signs, undertake an electrocardiogram and commence IV fluid as prescribed when syncope is suspected.

Summary of case studies
Stroke mimics are common. It is important to take a comprehensive patient and/or family history, assess the patient’s presenting symptoms, undertake a thorough clinical examination and request medical imaging of the brain such as CT and MRI scans. These investigations have a significant role in making an appropriate diagnosis of a stroke or a stroke mimic. Misdiagnosis of a stroke or a stroke mimic could potentially compromise patient safety by delaying appropriate treatment, or if inappropriate invasive procedures and medical management are commenced. To prevent such issues, it is important that all healthcare practitioners, including nurses, are aware of and observe for signs that can differentiate a stroke from a stroke mimic (Nau et al 2010).

Stroke and stroke mimics usually occur progressively, whereas the onset of a stroke is usually acute. Stroke mimics are usually non-vascular in origin and are not frequently associated with cardiovascular risk factors such as smoking, obesity and hypertension. Medical imaging results will usually be normal in a patient experiencing a stroke mimic and their symptoms will usually resolve within 24-36 hours. The mnemonic HEMI – hypoglycaemia, epilepsy, migraine and infection – is used to assist healthcare practitioners to remember the potential types of stroke mimic that a patient might be experiencing (Walker and Raynovich 2011).

Patient and family history
Obtaining an accurate history from a patient or their family is an important factor in diagnosing a stroke. Questions should focus on symptom types, onset and duration, as well as risk factors for stroke.

Table 3 provides some questions to consider when triaging a patient with a suspected stroke. Typically, a stroke involves the acute onset of symptoms. Identifying the time of stroke onset is crucial because if stroke occurred within 4.5 hours of presentation, thrombolytic therapy can be considered. A stroke is a focal neurological deficit in a vascular form; it usually persists beyond 24 hours and leaves irreversible brain damage. Patient characteristics, particularly age and gender, should be considered when taking a patient’s history. Vroomen et al (2008) stated that stroke mimics occurred in 21% of patients under the age of 50 years, but are rare (3%) in patients aged over 50 years.

Clinical examination
Rapid recognition of stroke warning signs in the emergency department is crucial to enable timely and proactive management. There are various tools available to assist in this process and differentiate between a stroke and a stroke mimic.

Recognition of Stroke in the Emergency Room scale
The Recognition of Stroke in the Emergency Room (ROSIER) scale (Table 4) is a simple, validated tool to differentiate a stroke from a non-stroke and is suitable for use in the emergency department (Nor et al 2005). It was developed because early recognition between a stroke and a stroke mimic was becoming vital with the increasing use of thrombolytic therapy in patients who had experienced a stroke (Nor et al 2005).

A ROSIER scale score of more than 0 indicates that a stroke is ‘likely’, while a score of less than 0 indicates that a stroke is ‘unlikely’ (Catangui and Slark 2012b). A ROSIER scale score is useful in identifying conditions such as Todd’s paresis, syncope, hypoglycaemia and other differential diagnoses for stroke.

In one study of 343 patients suspected of having a stroke, use of the ROSIER scale provided an accurate diagnosis within two to three minutes (Nor et al 2005). It has a diagnostic sensitivity of 92%.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Yes or no</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does the patient have any of the following symptoms:</td>
<td></td>
</tr>
<tr>
<td>» Facial asymmetry?</td>
<td></td>
</tr>
<tr>
<td>» Arm and/or leg weakness?</td>
<td></td>
</tr>
<tr>
<td>» Speech disturbance?</td>
<td></td>
</tr>
<tr>
<td>» Unsteadiness?</td>
<td></td>
</tr>
<tr>
<td>2. Is the stroke symptom new?</td>
<td></td>
</tr>
<tr>
<td>3. Did the stroke symptom occur suddenly?</td>
<td></td>
</tr>
<tr>
<td>4. Was the onset of the stroke symptom within 4.5 hours?</td>
<td></td>
</tr>
<tr>
<td>5. Are the symptoms not resolving?</td>
<td></td>
</tr>
</tbody>
</table>
A specificity of 86% (Nor et al 2005) and provides more detailed information than the Face, Arm, Speech and Time (FAST) tool, which is a triage tool for stroke (Nor et al 2004). The ROSIER scale is commonly used by doctors in emergency departments (Catangui and Slark 2012b). There is no empirical evidence that use of the ROSIER scale should be limited to doctors; however, training in its use is essential to ensure it is used appropriately and it is important that nurses are taught how to use the tool.

**National Institutes of Health Stroke Scale**

The National Institutes of Health Stroke Scale (NIHSS) (National Institutes of Health 2003) is a simple, reliable and valid tool that can be administered by both nurses and doctors (Catangui 2015). The NIHSS evaluates stroke severity based on 11 neurological functions: level of consciousness; best gaze; facial palsy; visual field; motor arm; motor leg; limb ataxia; sensory; best language; dysarthria; and extinction (inability to perceive multiple stimuli of the same type simultaneously) and inattention. The maximum score of 42 represents the most severe stroke, while a score of 0 indicates that there is no neurological deficit (Harrison et al 2013, Catangui 2015). The NIHSS is also useful for distinguishing a stroke mimic from a stroke because a low NIHSS score could predict a stroke mimic (Hand et al 2006).

The advantage of using NIHSS as an assessment tool for stroke is that it can evaluate the severity of stroke and can also predict discharge times and three-month outcomes after a stroke (Adams et al 1999, Schlegel et al 2003, Meyer and Lyden 2009). However, NIHSS does not include some of the possible posterior circulation stroke symptoms (where the occlusion of blood flow is at the back of the brain), such as dizziness, vertigo or diplopia (double vision). Therefore, a patient experiencing these symptoms might score 0 on the NIHSS, even if their MRI scan shows a stroke.

**Medical imaging**

CT and MRI scans are useful in diagnosing stroke. A CT scan can also easily identify conditions such as a brain tumour, intracerebral bleed and subdural haematoma. In stroke mimics, a patient’s CT scan would appear normal, except in brain tumours where a mass would be shown. However, a patient with a CT scan that appears normal could still have had a stroke, because parenchymal changes – for example, vasogenic oedema with greater mass effect hypoattenuation and well-defined margins – do not usually occur in the early phase of a stroke (Wintermark et al 2002, Davis et al 2006, Guerrero et al 2012). MRI scans provide accuracy and sensitivity in identifying stroke mimics (Lam et al 2005, Guerrero et al 2012), and the incidence of misdiagnosis of a stroke can drop to 2% with the use of MRI scans (Nau et al 2010).

The CT scan is the gold standard for diagnosis of acute strokes. CT scans are accessible in hospital settings and results can be obtained quickly. A CT scan must be undertaken immediately for all patients with suspected strokes – usually within 25 minutes of admission to the emergency department. However, unlike an MRI scan, a CT scan does not give healthcare practitioners detailed information about the brain damage or lesion unless it is a bleed or a brain tumour. Conversely, an MRI scan takes 30-45 minutes to complete, which could delay treatment in patients who are eligible for thrombolysis.

In general, acute stroke care and management require rapid assessment and evaluation. The use of patient and family history, evidence-based assessment tools such the ROSIER (Nor et al 2005) scale and NIHSS (National Institutes of Health 2003), and medical imaging can assist healthcare practitioners to identify and differentiate a stroke from a stroke mimic. Moreover, validated assessment tools such the ROSIER scale and NIHSS (Nor et al 2005) support nurses to assess strokes and communicate findings with the multidisciplinary team (Gocan and Fisher 2008).

**Conclusion**

Diagnosing a stroke is a challenge because there are several conditions that can mimic a stroke. Strokes and stroke mimics may have similar presentations, but have different causes, onset and duration of symptoms. Evidence-based assessment tools such as the ROSIER scale (Nor et al 2005) and NIHSS (National Institutes of Health 2003), a patient and family history, the patient’s current symptoms and medical imaging will assist healthcare practitioners, including nurses, to distinguish between a stroke and a stroke mimic.

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**TABLE 4. Recognition of Stroke in the Emergency Room scale**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has there been loss of consciousness or syncope?</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>Has there been seizure activity?</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>Is there a new acute onset (or on waking from sleep) of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymmetric facial weakness?</td>
<td>+1</td>
<td>0</td>
</tr>
<tr>
<td>Asymmetric arm weakness?</td>
<td>+1</td>
<td>0</td>
</tr>
<tr>
<td>Asymmetric leg weakness?</td>
<td>+1</td>
<td>0</td>
</tr>
<tr>
<td>Speech disturbance?</td>
<td>+1</td>
<td>0</td>
</tr>
<tr>
<td>Visual field defect?</td>
<td>+1</td>
<td>0</td>
</tr>
<tr>
<td>Total score (can range from -2 to +5):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Adapted from Nor et al 2005)
nursingstandard.com

References


