

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Shendi University



Faculty of Post Graduate Studies and Scientific Research

Research about:

**Assessment of Nurse's Knowledge and
Regarding Management of Seizure Disorders
in Elmak Nimer Hospital University**

*A full thesis Submitted in Requirements of Partial Fulfill for The
Master's Degree in pediatric Nursing*

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Verse

For I am the lord your God, who takes Hold of your right hand and says to you don't fear, I will help you.



Dedication

“God is grateful to express “My sincere special gratitude

to

my father Livio Mogga and mammy Mary Ejok

for their struggles to me.

I owe my sincere thanks and appreciation

to Julius, Samuel Atto,

and all those who have contributed towards the

successful completion of this endeavor.

Thanks are also extended to the nurse who participated willingly

in the study.



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The first greatest thanks to God Almighty

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Finally I would like to thanks all of

the people who help me in this research

Terms definition

Term

Definition

Epilepsy: Recurrent unprovoked seizures

Convulsions: Seizures with motor manifestations

Myoclonic: Brief body jerks

Tonic : Continuous contraction (s)

Clonic : Alternating contraction and relaxation

Atonic : Loss of tone

Akinetic : Motionless

Typical: Absences simple staring episodes with impairment of consciousness

Complex : Staring episodes, impairment of consciousness, automatisms, clonic activity, changes in postural tone.

ملخص البحث

التشنج هو اضطرابات كهربائية في المخ، ناتجة عن تغير في وظيفة الحركة والإحساس والمقدرة العقلية.

أجريت هذه الدراسة الوصفية في مستشفى المك نمر الجامعي لتقييم معرفة الممرضات حول العناية بالطفل المصاب بالتشنج أقل من 5 سنوات، في الفترة من أغسطس إلى نوفمبر 2016م وأوضحت الدراسة أن أكثر من ثلث (35%) الممرضات لا يملكن المعرفة التامة عن اضطرابات التشنجات، كما أن معظمهن (87%) لديهن أداء جيد بعناية الطفل المتشنج. وكشفت الدراسة أن حوالي نصف، (52%) على التوالي من الممرضات لديهن معرفة جيدة حول مضاعفات التشنج والعوامل المهيجة له، ووضحت الدراسة أن أقل من نصف الممرضات (47%) لديهن معرفة جيدة حول الأدوية المستخدمة لعلاج التشنجات.

وأوصت الدراسة بتعليم وتدريب الممرضات عن طريق البرامج التعليمية بالإضافة إلى تقييم وتحديث برامج معرفة الممرضات حول اضطرابات تشنجات الأطفال.

Abstract

A seizure is an electrical disturbance within the brain, resulting in changes of motor function, sensation, or cognitive ability ⁽¹⁾.

This study was done in Elmak Nimer university hospital to assess nurses knowledge and performance regarding care of children with seizure disorders under five years in period from august to November 2016.

The study clarified that more than one third (35%) of study group had poor knowledge about seizure disorders and majority (87%) of study group had good regarding care of seizure.

The study revealed that half (50%), (52%) of study group had good knowledge about prevention of complication during seizure and factor that triggers seizure attack. The study clarified that less than half (47 %) of the study group had good knowledge about drugs used to treat seizure

This study recommended that continuous in-services training and workshops for nurses through educational programs must be established

In addition, a follow-up educational sheet must be designed in order to evaluate nurses; progress in each educational session.

The essential need for refreshing courses to inform nurses about updating knowledge in the field of seizure disorders.

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Chapter One

Introduction

Justification

Objectives

1.1 Introduction

Seizures are among the most frequently observed neurologic disorders in children, with as many as 4% of all children having had at least one seizure during the first 15 years of life. Recurrent seizures affect about 0.5% of children. By definition, seizure is the clinical manifestation of abnormal neuronal hyperactivity, and its location determines the type of seizure. A seizure is an electrical disturbance within the brain, resulting in changes of motor function, sensation, or cognitive ability ⁽¹⁾. Epilepsy is defined as recurrent, unprovoked seizures. One seizure does not constitute epilepsy. Similarly, recurrent unprovoked seizures, i.e. febrile seizures, do not mean that the child has epilepsy. While epilepsy means recurrent, unprovoked seizures, it needn't be a lifelong disorder. Approximately 60-70% of children with epilepsy outgrow the disorder.

The features of seizure disorders in childhood are sufficiently distinctive to deserve separate discussion. Neonatal seizures, infantile spasms, febrile convulsions, and the absence seizure syndrome are specific childhood seizure types. The etiology of pediatric seizure can be divided into two groups: symptomatic and idiopathic. In symptomatic epilepsy, an etiological factor can be identified while in the idiopathic group, no etiologic factors can be detected. Etiological agents in children differ from those in adults. Seizures in adults most frequently are caused by brain tumors, cerebrovascular accidents, and trauma, while in children, congenital brain malformations, infections, metabolic disease, hypoxic-ischemic injuries, and inherited disorders are more common ⁽¹⁾.

A febrile convulsion is a seizure occurring in a child, precipitated by a fever arising from infection outside the nervous system in a child who is otherwise neurologically normal. Febrile convulsions have long been recognized, but only in recent years more fully understood. Hippocrates, writing in the 4th century BC, described such a convulsion, clearly differentiating it from rigors and breath holding attacks. He noted that both generalized and

partial seizures can occur, and realized that there was a strong association with age, high fever and a precipitating infection.⁽¹⁵⁾

1.2 Justification

Because seizure is emergency case which cause complication or death the nurse must be knowledgeable about seizure management. Study conducted to assess nurses' knowledge regarding management of seizure disorders in el Mack Nimir hospital university.

1.3 Objectives

1.3.1 General objective:

To assess nurses' knowledge regarding management of seizure disorders in El Mack Nimir Hospital University.

1.3.2 Specific objectives:

1. To determine nurses knowledge regarding management of seizure pre during and post seizure attack.
2. To determine seizure triggers in children.
3. To identify nurses knowledge regarding treatment of seizure disorders.
4. To identify complications and prevention of seizure disorders in children.

2. Literature review

The brain contains billions of neurons (nerve cells) that create and receive electrical impulses. Electrical impulses allow neurons to communicate with one another. During a seizure, there is abnormal and excessive electrical activity in the brain. This can cause changes in awareness, behaviors, and/or abnormal movements. This activity usually lasts only a few seconds to minutes. Seizures are frightening to watch, but children rarely suffer long-term harm as a result of a seizure. Fortunately, most seizures can be controlled with medication, and the risk of seizures often declines as a child grows older ⁽²⁾.

Definition of seizure:

Seizure is a paroxysmal clinical event of the central nervous system, characterized by an abnormal electrical discharge and associated with a change in the usual functioning. or seizure occurs when there is a sudden imbalance between the excitatory and inhibitory inputs to a network of neurons in the cerebral cortex, so that there is overall excessive excitability.

Epilepsy: is a chronic disorder characterized by recurrent unprovoked seizures. The diagnosis of epilepsy is made when a child has two or more unprovoked seizures that is, seizures not associated with triggers such as sleep deprivation, infection, trauma, intake of alcohol or the use of illicit drugs ⁽³⁾.

Pathophysiology:

Seizures are the result of a spontaneous electrical discharge of hyperexcited brain cells in an area called epileptogenic focus. These cells can be triggered by either environmental or physiological stimuli such as emotional stress, anxiety, fatigue, infection, or metabolic disturbances. The exact location of the epileptogenic foci and the number involved determines the nature of the seizure. If a small area of the brain is affected, a focal (localized) seizure may occur. However, if the electrical discharge continues, it may become generalized. A generalized seizure will also occur if the epileptogenic focus is located in the brain stem, midbrain, or reticular formation ⁽¹⁾.

Causes of Seizure:

Seizures can be caused by fevers, infections, cardiac anomalies, trauma, hypoxia, ingestion of toxic substances, breath-holding spells, gastro esophageal reflux, epilepsy, genetic factors, or idiopathic causes. Seizures can also be acquired, resulting from traumatic brain injury, central nervous system infection, hypoglycemia or other endocrine dysfunction, toxic ingestion or exposure, or intracranial lesion or vascular malformation. Typically, infants develop seizures because of birth injury, anoxic episodes, infection, intraventricular hemorrhage, or a congenital brain anomaly. Seizures in older children occur most often secondary to trauma or infection. In addition, changes in diet or hydration status, fatigue, or not taking prescribed medications may precipitate seizure activity ⁽¹⁾.

Clinical manifestation and types of seizure.

Depend on the specific type of seizure:

There are major categories of seizures two major categories of seizures—partial and generalized seizures. In partial seizures only one area of the brain is involved, while general seizures involve the entire brain. Partial seizures account for a large portion of childhood seizures and are classified as simple or complex. Generalized seizures include infantile spasms, absence seizures, tonic-clonic seizures, myoclonic seizures, and atonic seizures. There are many different types of seizures, and the classification of the type of seizure is crucial in assisting with the management and control of seizures.

1- Partial seizures, which arise from abnormal electrical activity in a small area of the brain, most often the temporal, frontal, or parietal lobes of the cerebral cortex, will have symptoms associated with the area of the brain affected.

2- Generalized seizures: secondary to diffuse electrical activity throughout the cortex and into the brain stem, will cause the child to lose consciousness as well as demonstrate uncontrolled motor involvement with movements and spasms bilateral and symmetrical in nature;. Partial seizures are characterized by local motor, sensory, psychic, and somatic manifestations. Partial seizures differ from generalized seizures in how they are manifested and how they affect

consciousness. During partial seizures, movements are asynchronous and tend to involve only the face, neck, or extremities. Consciousness is usually maintained and patients may be able to talk through the seizure. In complex partial seizures, consciousness may be impaired or lost.

There are two types of partial seizures: simple and complex.

- a- Simple partial seizures or focal seizures can be manifested at any age. An aura, such as chest pain or headache, may occur. Most often, the symptoms seen are motor or sensory in nature. Movements may involve one extremity, or a part of that extremity, or the head and eyes will twist in the opposite direction of the extremities. The arm toward which the head is turned is abducted and extended with the fingers clenched. There may be numbness, tingling, or painful sensations as well that begin in one area of the body and spread out to others. Alterations in sensory perception may also be present. The child may have visual hallucinations and report seeing images or light flashes. In addition, a buzzing sound may be heard, unusual odors identified, or an odd taste experienced. The child may also report feeling emotional or anxious). Simple partial seizures may have unique features. Seizures that begin in a very specific area (fingers of one hand, toes of one foot, one side of the face, etc) progress, or “march” up adjacent muscles to include a much larger area of the affected extremity or side of the body. This phenomenon was formerly referred to as a “Jacksonian march” or Jacksonian seizure. Other patients will experience a localized paresis after a partial seizure that affects the same area affected by the seizure. This paresis can last for minutes to hours and is referred to as Todd’s paralysis. Rarely, partial seizures will persist for hours or days. Known as *epilepsia partialis*, these seizures are often unresponsive to medical interventions ⁽¹⁾ .
- b- Complex partial seizures: Are also known as partial psychomotor or temporal lobe episodes. They can be manifested from age 3 years through adolescence. Just before the event, the child may have an aura. In

addition, the youngster may have feelings of anxiety, fear, or déjà vu, the sense an event has occurred before, or complain of abdominal pain, having an unusual taste in the mouth, smelling an odd odor, or visual or auditory hallucinations. Consciousness is not completely lost during complex partial seizures. Rather, the child will appear confused or dazed, especially at the onset. When the seizure begins, the child stops the activity he or she is involved in and begins purposeless behaviors such as staring into space or assuming an unusual posture. The child may also perform automatisms, or repeated nonpurposeful actions, such as lip smacking, chewing, sucking, or uttering the same word over and over, wander aimlessly, or remove clothing. Violent acts or rages are rare. A postictal period follows this type of seizure when the child will be drowsy, confused, aphasic, or display sensory or motor impairments. Children usually do not remember the behaviors displayed.

b- Generalized seizures, arising from both cerebral hemispheres, can occur at any time and last from several seconds to hours. There is no aura, but some children describe a prodrome of vague symptoms leading up to the seizure. There is always loss of consciousness. Generalized seizures appearing in children under 4 years of age are frequently associated with developmental delays, learning disabilities, and behavior disorders ⁽¹⁾.

There are four types of generalized seizures:

- ❖ tonic/clonic,
- ❖ absence,
- ❖ myoclonic, and
- ❖ akinetic.

Tonic/clonic seizures:

Formerly referred to as (grand mal seizures, can occur at any age.) Onset is usually abrupt and begins when the child loses consciousness and falls to the ground. The initial phase is tonic when there are intense muscle contractions.

The jaw clenches shut; the abdomen and chest become rigid; and often the child emits a cry or grunt as exhaled air is forced out because of the taut diaphragm. Pallor or cyanosis may occur as oxygenation and ventilation are impaired. The airway is compromised due to increased salivation the child cannot manage because of muscular contractions as well as the diminished mental status. The neck and legs are also extended while the arms are flexed or contracted. The eyes roll upward or deviate to one side, the pupils dilate, and there may also be bladder or bowel incontinence. The tonic phase of the seizure usually persists for 10 to 30 seconds. During the clonic phase, jerking movements are produced as a result of contraction and relaxation of the muscles. Excessive salivation can cause breathing difficulty and partial airway obstruction. Bladder and bowel incontinence are not uncommon. Clonic spasms dissipate as the seizure ends, and can last from 30 seconds to 30 minutes after onset of the seizure. A postictal or postconvulsive state follows a tonic/ clonic seizure. Consciousness returns gradually over minutes to hours, and the child will appear confused, be combative, or complain of headache, fatigue, or muscle aches. The child may have no memory of the event and will often be hypertensive and diaphoretic. Nausea, vomiting, poor coordination, slurred speech, or visual disturbances may follow⁽¹⁾.

Absence seizures:

called petit mal seizures, most often begin in early childhood (ages 4 to 8), but may begin in adolescence. they are characterized by a transient loss of consciousness, which may appear as cessation of current activity. the child seems to stare into space or eyes may roll upward with ptosis or fluttering of the lids, lip smacking or a loss of muscle tone causing the head to droop or any objects in the hands to be dropped. these events usually last from 5 to 10 seconds and can occur hundreds of times per day. Children with this type of seizure are often accused of daydreaming and being inattentive in school. Absence seizures respond well to medication and usually spontaneously resolve during adolescence.⁽¹⁾

Myoclonic seizures:

Are sudden repeated contractures of the muscles of the head, extremities, typical, and juvenile myoclonic seizures have good outcomes. these seizures can begin as young as 6 months, in early childhood, or adolescence, and occur when the child is drowsy and just falling asleep, or just waking up, there is usually no loss of consciousness, no postictal period, and the child recovers quickly. Complex and progressive myoclonic epilepsies have poor outcomes. they can result in cognitive and development delays, and can be difficult to control.

Atonics or astatic-akinetic seizures (drop attacks):

Occur between ages 2 and 5 years, and are manifested by sudden loss of muscle tone with the head dropping forward for a few seconds. For seizures that last only 1 to 2 seconds, the child may exhibit only a head drop or nod. More significant events occur when the youngster loses consciousness and falls to the ground, most often face down. In either case, amnesia follows. These seizures often cause repetitive head injuries if the child is not protected by wearing a football or hockey helmet. Many have underlying brain abnormalities and are mentally retarded ⁽¹⁾.

Diagnosis of seizure:

The objectives of diagnosis are threefold:.

The objectives of diagnosis are three fold: to ascertain whether the child truly had a seizure, to determine the cause of the episode, and to classify the type of seizure this process begins with obtaining a thorough history from the caregivers or witnesses. In addition,:

❖ a complete medical history:

Must be obtained, noting any illnesses, medications, hospitalizations, or toxic exposures the child may have had as well as if previous episodes occurred.

❖ Family history:

Also important because of genetic predisposition to some types of seizures. Often the diagnosis is based solely on the history since the physical examination and laboratory studies may be normal.

History should also include an exploration of risk factors:

Fever, head trauma, illnesses, stroke, tumors, ingestion of toxin or poison, or chemical exposure. Other precipitating factors, such as sleep deprivation, systemic diseases, medications, alcohol or drugs, should be determined. Finally, the presence or absence of an aura should be determined.

❖ a complete physical examination:

Must be performed, This includes identifying signs of infection and a complete neurological evaluation, including checking the level of consciousness, reflexes, and sensory and motor responses. The child's developmental stage should also be determined.

- ❖ A complete blood count: can determine the presence or absence of infection such as meningitis or encephalitis, and serum electrolytes should be analyzed to rule out metabolic disturbances, particularly hypoglycemia.
- ❖ A lumbar puncture: may also be performed to investigate for infectious processes or bloody cerebrospinal fluid. If a toxic ingestion is suspected, both urine and blood can be checked for its presence.
- ❖ (EEG) is the accepted standard test for diagnosing a seizure disorder. The EEG evaluates the electrical activity of the brain while the brain is in a sleepy or drowsy state and also when stimulated. Loud noises, bright lights, and rapid flashing images are presented during the procedure and the resulting electrical brain wave response is graphed. This information is useful to the neurologist in diagnosing the type of seizure activity, especially if the history and exam do not support a clear diagnosis ⁽¹⁾

- ❖ A computed tomography (CT) scan or an MRI may be performed to look for CNS malformation, lesions, neoplasms, hemorrhage, trauma, foreign body, or edema. An angiography is done to assess for arteriovenous malformations that may be hereditary. New-onset seizures may suggest malignant neoplasms and warrant emergent neuroimaging⁽²⁾.

Assessment and management:

The first step in the management of the patient who is having a seizure is to assess and support airway, breathing and circulation. This will ensure that the seizure does not compromise supply of oxygenated blood to the brain and is not secondary to hypoxia and/or ischaemia.

5.1 Airway:

A clear airway is the first requisite. If the airway is not clear it should be opened and maintained with a head tilt/chin lift or jaw thrust maneuver while the child is in a supine position. An oropharyngeal or nasopharyngeal airway may be used.

If the airway is compromised due to the seizure, controlling the seizure with anti-epileptics will generally control the airway. Even if the airway is clear, the oropharynx may need secretion clearance by gentle suction. After initial airway clearance the airway should continue to be observed and protected as required. Post seizure a child should be positioned on his or her side (recovery position).

5.2 Breathing:

Assess the following for adequacy of breathing by the ‘look, listen and feel’ method:

Effort of breathing:

– Recession

– Respiratory rate

– Grunting, this may be caused by the convulsion and not be a sign of respiratory distress in this instance.

□ □ Efficacy of breathing:

- Breath sounds
- Chest expansion/abdominal excursion
- Monitor oxygen saturation with a pulse oximeter.

□ □ Effects of breathing:

- Heart rate
- Skin colour.

All fitting children should receive high flow oxygen through a face mask with a reservoir as soon as the airway has been demonstrated to be adequate.

If the child's breathing is inadequate, respiration should be supported with oxygen via a bag-valve-mask device and experienced senior help summoned.

Prolonged seizures and/or repeated doses of anti-epileptic medications may lead to compromise of airway and breathing requiring ongoing support including intubation ⁽⁴⁾.

5.3 Circulation:

Assess the following for adequacy of cardiovascular status:

□ □ Heart rate: the presence of an inappropriate bradycardia or hypertension will suggest raised intracranial pressure.

□ □ Pulse volume: assess the adequacy of circulation by palpation of central pulses (femoral, brachial).

□ □ Capillary refill: capillary refill should be seconds or less and is measured by applying cutaneous pressure on the centre of the sternum for 5 seconds

□ □ Blood pressure: significant (>97th percentile for age) hypertension indicates a possible a etiology for the seizure.

□ □ Effects of circulatory inadequacy on other organs - pale, cyanosed or cold skin.

Gain intravenous access. If vascular access is not readily obtained, initial doses of antiepileptics should be given by the buccal, intra-nasal or intramuscular route.

Intraosseous access should be obtained immediately in children with signs of shock if intravenous access is not readily obtained. Intraosseous access may be needed for administration of long-acting anti-epileptics if there is no intravenous access after two doses of a benzodiazepine.

Give 20 mL/kg rapid bolus of 0.9% sodium chloride to any patient with signs of shock or sepsis - see Paediatric Sepsis Pathway. Give a broad spectrum antibiotic (third generation cephalosporin) to any child in whom a diagnosis of meningitis or septicaemia is suspected. If possible blood should be collected first for culture but this should not delay administration of antibiotics and the Paediatric Sepsis Pathway. Check blood pressure as soon as the seizure has finished. ⁽⁵⁾

5.4 Disability:

Assess the following for adequacy of neurological function:

□□ The AVPU (Alert, Voice, Pain, Unresponsive) score cannot be measured meaningfully during a seizure as a generalised seizure depresses the level of consciousness.

□ □Pupillary size, reaction and symmetry should be noted. Pupillary changes can occur during a seizure but may also result from poisoning or raised intracranial pressure.

Very small pupils suggest brainstem injury or opiate poisoning, large pupils suggest amphetamines, atropine, or tricyclic antidepressants □□Note the child's posture. Decorticate or decerebrate posturing in a previously normal child should suggest raised intracranial pressure. These postures can sometimes be mistaken for the tonic phase of a seizure. Consider also the possibility of a drug induced dystonia that is distinguishable from tonic-clonic status epilepticus

□□Assess for neck stiffness in a child and a bulging fontanelle in an infant, which suggests meningitis. ⁽⁴⁾

Focused history:

Whilst the primary assessment and resuscitation are being carried out, a focused history of the child's health and activity over the previous 24 hours and

any significant previous illness should be gained. Specific points for history taking include:

- Current febrile illness
- Neurologic state prior to the seizure
- Recent trauma. Consider non-accidental injury
- History of epilepsy
- Current medication and allergies
- Recent immunization
- Poison ingestion including lead, tricyclic anti-depressants, benzodiazepines, antipsychotics and salicylates. Anti-epileptic toxicity may also exacerbate seizures.
- Past medical history, immunisations

Physical Examination:

Perform a complete neurologic examination. Careful assessment of the child's mental status, language, learning, behavior, and motor abilities can help provide information about any neurologic deficits. If you observe seizure activity directly, provide a thorough and accurate description of the event.

This description needs to include:

- Time of onset and length of seizure activity
- Alterations in behavior such as a cry or changes in facial expression, motor abilities, or sensory alterations before the seizure that may indicate an aura
- Precipitating factors such as fever, anxiety, just waking, or eating.
- Description of movements and any progression
- Description of respiratory effort and any apnea noted
- Changes in color (pallor or cyanosis) noted
- Position of mouth, any injury to mouth or tongue, inability to swallow, or excessive salivation
- Loss of bladder or bowel control.

- State of consciousness during seizure and postictal (after seizure) state—during the seizure the nurse may ask the child to remember a word; after the seizure, assess if child is able to recall it, to help accurately establish current mental state
- Assess orientation to person, place, and time; motor abilities; speech; behavior; alterations in sensation postictally
- Duration of postictal state.

Treatment of seizure:

The child with tonic/clonic seizures must be managed Quickly, the airway must be assured; a short-term method is to perform the jaw thrust. Nothing, including a tongue blade, should ever be placed in the child's mouth. The child may then be placed on his or her side if the airway is patent to help prevent secretions from pooling in the mouth, and suction should be readily available. Because of thoracic and diaphragmatic muscle rigidity, air ventilation may be impaired and hypoxia may result. Therefore, children having tonic/clonic seizures should receive oxygen during the event either by a clear face mask or assisted ventilations. Many seizures are self-limiting and last less than five minutes; these require no further management other than airway management and oxygen administration. When a child is at risk for seizures, preparations include padded bed rails and the immediate availability of suction equipment and medications.

If the seizure does not resolve spontaneously, the hospitalized child will need intravenous medications. The benzodiazepines (diazepam [Valium] or lorazepam [Atavan]) are usually administered first, and if seizures continue, phenytoin (Dilantin) or fosphenytoin (Cerebyx) are administered next. Phenobarbital (Luminal) may also be given, but it takes 30 minutes before onset. It is important to place the child on a cardiorespiratory monitor during medication administration as an apneic response may follow administration of the benzodiazepines. There is also the risk of hypotension or cardiac dysrhythmias when phenytoin is administered, especially via a fast IV. Once the seizure is over, the child should be closely monitored during the postictal period.

If the episode is a first-time event, diagnostics should begin after recovery). Once the diagnosis and the type and cause of the seizure are identified, more definite treatment can begin. If the cause were infectious, a toxic exposure, metabolic abnormality, an intracranial lesion, or a vascular malformation, that particular cause would be treated. When a seizure is febrile in nature, the parents should be reassured of its benign nature. Early treatment of fevers has not been found to prevent febrile seizures. For the child with recurring convulsions caused by nonstructural pathology, anticonvulsant medications would be prescribed, and the child followed by neurologists who carefully monitor drug serum levels to ensure therapeutic ranges. If episodes continue, medications could be changed or added to the child's current regimen. Refer to Table 32-6 for commonly drugs used to treat seizures by type ⁽¹⁾.

Dietary treatment:

A special diet, known as the ketogenic diet, has been used as a treatment for children with some types of seizures that do not respond to antiseizure drugs. The diet consists of high fat, relatively low carbohydrate and adequate protein. The diet does not usually "cure" the seizures, but it lowers the likelihood of seizures by at least 50 percent in approximately 40 percent of patients, particularly those between one and 10 years of age.

Parents should not attempt to start their child on a ketogenic diet on their own; it should be supervised by a well-trained dietitian in an Epilepsy Center with experience managing the diet. The diet is usually started in a hospital setting, although some experts are able to manage patients at home. The child must be closely monitored to ensure he or she is growing and getting all the necessary nutrients. The diet is often continued for at least two years in children who improve significantly.

The restriction on eating carbohydrates may be difficult for some children, especially those who are reluctant to try new foods. Parents, teachers, relatives, and friends need to understand that even one bite or taste of a restricted food can lead to a seizure. The diet may significantly change

experiences like birthday parties and holidays, which frequently include high carbohydrate foods. Talking to other parents of children who have used the diet may be helpful in deciding whether to attempt it.

Vagus nerve stimulation (VNS) — The vagus nerves are a pair of large nerves located in the neck. Stimulating the left vagus nerve intermittently with electrical pulses can reduce the frequency of seizures in some people. This requires surgically implanting a small device or pacemaker, called a stimulator, under the skin in the left upper chest, which is attached to a wire secured around the nerve in the neck ⁽³⁾.

Ketogenic Diet :

Has gained popularity in treating absence, akinetic, and myoclonic seizures that are pharmacoresistant. The diet severely limits the intake of proteins and carbohydrates, thereby forcing the body to use fats for fuel resulting in the creation of ketones. The amount of protein in the diet is regulated so that 90% of the calories are derived from fat, and the fat to carbohydrate ratio is 4:1.

How the diet affects seizures: is not clearly understood, however some evidence attributes an anticonvulsive effect to the ketone bodies released by ketosis. The diet is especially useful in young children with infantile spasms, myoclonic, or atonic-kinetic seizures and those with mixed seizures of Lennox-Gastaut Syndrome when side effects to medications are intolerable or when allergies preclude administration. For infants and children under 2 years of age, the diet can be especially successful. For older children, adherence to the very restrictive, sometimes unpalatable diet can be challenging. Adherence to the diet is improved when seizures are controlled. Side effects of the diet include acidosis, hypoglycemia, and renal stones. ⁽¹⁾.

Valproic acid:

Is contraindicated for children on the diet. Recent technological advances have led to the use of vagal nerve stimulation to prevent or interrupt seizures. A device is surgically implanted below the left clavicle and attached to the vagus

nerve. Cyclic stimulation of the vagus nerve has been shown to reduce seizure activity by 50% in over half of children treated. In addition to the preset cyclic stimulation, a magnet can be used to trigger the stimulator to interrupt seizure activity. When seizures are intractable, surgery may be the last hope for control. For children with focal seizures, the epileptogenic focus may be removed if there are no critical structures involved. Temporal lobectomy or a hemispherectomy could be performed on the child with unrelenting partial seizures with widespread hemispheric origin. Oftentimes, these youngsters will also display preexisting motor, cognitive, and sensory deficits. The goal of surgery is not only to decrease seizure activity, but also to improve the child's behavior and intellectual status. Surgery successfully eliminates seizures in 80% or more of cases ⁽¹⁾.

Seizure Medications:

Type of Seizure:

- ❖ Partial Complex.

Medication:

1- Carbamazepine (Tegretol)

Dose range 10–30 mg/kg per day in divided doses. Increase until best response is achieved (Psychomotor

Drowsiness, nausea, liver changes, increased appetite.

Nursing Care.

Give with food but not with milk.

2- Phenytoin (Dilantin) dose range 5 mg/kg per day in two to three divided doses.

Adverse Reactions:

May cause dizziness, drowsiness, or physical in coordination. Avoid abrupt discontinuation of use. Daily multivitamin is recommended while on this medication.

Nursing Care:

Give with water, juice or milk.

3- Phenobarbital (Luminal) Infants 5–6 mg/kg per day in one or two divided doses.

4- Fosphenytoin (Cerebyx) Children 1–6 years, 6–8 mg/kg per day in one or two/

divided doses. Loading dose of 10–20 mg/ kg. Then 4–6 mg/kg per day.

Generalized seizure:

Tonic clonic

5- Valproic acid (Depakene) and carbamazepine (Tegretol).

6- Phenytoin (Dilantin). Phenobarbital May be an inexpensive medication.

Adverse Reactions:

Monitor for sleepiness, hyperactivity, drowsiness and school performance changes. Ketogenic diet high in fat and low in protein and carbohydrates.

Causes a high level of ketones which decrease myoclonic or tonic–clonic seizure activity.

Absence (Petit Mal) Ethosuximide (Zarontin) or Valproic Acid 3–8 mg/kg per day Avoid antacids.

Partial Simple:

Topiramate (Topamax) 1–3 mg/kg per day ⁽²⁾.

Nursing management:

- The nurse caring for the child with seizures has multiple responsibilities If the child is actively convulsing, a patent airway and adequate oxygenation must be assured. Prescribed medications need to be administered in a safe and efficient manner, noting the specific rates of delivery, need for cardiorespiratory monitoring, and watching for potential adverse reactions. Once the episode is controlled, the nurse must document the event in detail, including the onset of any aura to resolution.
- Nurses should provide a safe environment for the child with seizures to ensure injury will not occur.

- Suction and oxygen should be at hand and bed rails padded. If the event occurs when the child is in a chair or standing, the child should gently be helped to the ground, placed on one side, and any nearby objects moved out of the way.
- Children with atonic or recurrent seizures may wear helmets to protect their heads during falls.
- The nurse must also care for the emotional needs of the child and family as seizures can often have a negative stigma, making the victim as well as caregivers and siblings uncomfortable or ashamed. The child may resent feeling different from peers and taking medications several times per day, or fear having a seizure in front of friends.
- The nurse should encourage the child to talk about these feelings and provide help so the condition can be accepted ⁽¹⁾.

Family teaching:

- The nurse must work with the family as well, Some caregivers feel guilty, especially if the episodes are a result of trauma or genetic predisposition.
- The nurse should allow these family members to express their feelings and frustrations. Caregivers may also worry about the financial aspects of having a youngster with a chronic condition, requiring daily medications, visits to the neurologist, and frequent drug serum monitoring.
- The nurse can arrange for caregivers to speak with social services for assistance in working out these issues.
- Caregivers must also be taught how to give medications, and the importance of not missing doses. They also need to know drug serum levels should be checked periodically as the child grows.
- School-age children should be encouraged to accept responsibility for taking their own medications as this gives them feelings of control over their illness.

- Safety is another issue to discuss with the child, caregivers, teachers, babysitters, and family members. All should know what to do when a seizure occurs and when to call emergency medical services.
- The child should wear a Medic Alert bracelet or necklace, and people caring for this youngster should be aware of activities that can and should not be encourage While most play is acceptable, contact sports are ill-advised. In addition, the child with a seizure disorder must be carefully watched at all times during a bath or if involved in any water activities such as swimming or boating.
- Instruct what to do if child seizes and when to call 911 for help.
- It will also be helpful to teach parents and caregivers CPR. Provide teachers, classroom assistants, school nurses or health aides, and administrative staff with information on what to do if the child has a seizure in school. If the school nurse or health aide must give a medication during the day, provide information about the drug. If the child and caregiver agree, talk to the children in the class at school about the child's condition as well as what a seizure is and what it looks like in order to reduce fears and anxieties about their cassmate.
- Refer the family and child to groups offering support to families whose child has a seizure disorder. ⁽¹⁾

Managing Treatment:

Provide child and family teaching and instruction regarding the administration of anticonvulsant therapy and its importance. Included in this discussion should be common adverse effects, the need to continue the medication unless instructed otherwise by the physician or nurse practitioner, and the need to call the physician or nurse practitioner if the child is ill and vomiting and unable to take his or her medication. Encourage parents to discuss unwanted adverse effects with the physician or nurse practitioner so that they can be addressed and noncompliance with the medication regimen can be

reduced. A common cause of breakthrough seizures is medication noncompliance ⁽⁷⁾.

Providing Family Support and Education:

Having a child with a chronic seizure disorder can place stress and anxiety on the family. This stress and anxiety is often due to fears and misconceptions they may have. An important nursing function is to educate not only the child and family but also the community, including the child's teachers and caregivers, on the reality and facts of the disorder. Encourage parents to be involved in the management of their child's seizures, but to allow the child to learn about the disorder and its management as soon as he or she is old enough. Encourage parents to treat the child with epilepsy just as they would a child without this disorder. Children who are brought up no differently than children without epilepsy will be more likely to develop a positive self-image and have increased self-esteem. Any activity restrictions, such as limiting swimming or participation in sports, will be based on the type, frequency, and severity of the seizures the child has. Educate parents and children on any restrictions and encourage parents to place only the necessary restrictions on the child.

The needs of the child and family will change as the child grows and develops. The nurse needs to recognize these changes and provide appropriate education and support. Referral to support groups is appropriate ⁽⁷⁾.

Seizure precautions:

- Maintain airway patency—Ensure nothing is placed in the child's mouth during a seizure. A loose tooth may be aspirated or knocked out.
- Monitor oxygenation—The child's color should remain pink. The pulse oximeter should read 95% or greater and the heart rate should be normal or slightly raised.
- Administering medications—When administering intravenous medications during a seizure, give the medication slowly to reduce the risk of side effects such as respiratory or circulatory failure.

- Raise and pad the side rails when the child is in bed or crib— The child needs to be protected from self harm.
- Helmet—If the child has frequent seizures, a helmet can be worn to protect his head in case of a fall.
- Medical alert bracelet—The child who has seizures should wear a medical identification bracelet at all times
- Oxygen and suction at bedside
- Supervision, especially during bathing, ambulation, or other potentially hazardous activities
- Use of a protective helmet during activity may be appropriate ⁽²⁾.

Care during seizures:

If you witness your child's seizure, it is important to prevent the child from harming him or herself.

- Place the child on their side to keep the throat clear and allow secretions (saliva or vomit) to drain.

Do not try to stop the child's movements or convulsions. Do not put anything in the child's mouth, and do not try to hold the tongue. It is not possible to swallow the tongue, although some children may bite their tongue during a seizure, which can cause bleeding. If this happens, it usually does not cause serious harm.

- Keep an eye on a clock or watch. Seizures that last for more than five minutes require immediate treatment.

- Move the child away from potential hazards, such as a stove, furniture, stairs, or traffic.

- Stay with the child until the seizure ends. Allow the child to sleep after the seizure if he/she is tired. Explain what happened and reassure the child that they are safe when they awaken.

- Discuss a post-seizure plan of care with your child's healthcare provider to determine if and when to call the doctor or go to the emergency room and when to give additional anti-seizure medicine after a seizure.

When to call for help — Call for an ambulance in the following situations:

- If the child is seriously injured during the seizure (eg, falls and hits head)
- If the child is having difficulty breathing and/or the skin is blue after the seizure.
- If another seizure occurs immediately or if the child cannot be aroused after the seizure. ⁽⁶⁾

Seizure Prevention:

Many children with epilepsy gain complete control of their seizures with regular use of seizure preventing medicines. These medicines may have to be taken during the school day.

Successful treatment depends on keeping a steady level of medication in the child's blood at all times, so it is important that doses not be missed or given late. ⁽³⁾

In many schools the school nurse will be the staff member who will look after the medicine and give it to the child each day. The time when it is given, and the amount, will be arranged with the parents according to the doctor's instructions.

In some schools, however, the principal or the home room teacher will have this responsibility.

Whatever the arrangement, permission for the child to get the medication on a prearranged schedule should be freely given and every effort should be made to help him or her get the medicine on time.

State or local regulations may require an adult to give medicine at school. However, the child should have the responsibility of knowing when it should be taken and making sure that he's in the right place to get it.

Although the side effects of antiepileptic drugs are generally mild, unusual fatigue, lethargy, clumsiness, nausea or other signs of ill health in the child with epilepsy should be reported promptly to the school nurse and to the parents. ⁽³⁾

School Performance:

Most children with epilepsy test in the average I.Q. range and will keep up with the class. However, research studies have shown that a number of youngsters with this condition achieve at a lower level than their test scores would predict.

There may be several reasons why this happens:

- The medicines that prevent seizures may be affecting the child's ability to learn. Phenobarbital sometimes has this effect; certain other drugs do as well. If the child seems excessively sleepy and lacks energy, the parents should be told. A change in medicine or the times it is taken might help.
- Unrecognized seizure activity in the brain may be interfering with attention. Difficulty paying attention is a frequent problem for children with epilepsy. Anxiety over the possibility of having a seizure may be affecting attention as well. ⁽³⁾
- There may be some underlying condition in the brain that is interfering with learning, memory, or the way the brain handles information. These problems may show up in math, reading, and tasks involving memory.
- A child may be showing the educational effects of prolonged periods away from school for medical tests and treatment. He or she may also have missed important aspects of previous instruction because of an undiagnosed seizure disorder.

Missed schooling may be the easiest problem to remedy, since it can be approached through tutoring, and remedial work. The other problems are more subtle and may require special techniques to identify and overcome.

For example, testing by a neuropsychologist who is knowledgeable about epilepsy can help determine if the difficulties a child is having are due to some specific learning disability. Once identified, special education techniques may help the youngster overcome the problem.

It is important to remember that these are problems which only occur in some children with epilepsy. Many children with epilepsy do well in school without any of these difficulties.

Behavior:

The average child with epilepsy will not have behavior problems and will respond to appropriate discipline in the classroom in the same manner as all the other children.

When children with epilepsy do have behavior problems, these may be caused by any one of several different factors.

The seizure activity itself, the medication, the child's own anxiety and low self esteem, or parental overprotection or overindulgence are all factors that may produce problem behavior. Occasionally a child may also have severe behavior problems that are quite separate from the seizure disorder itself, but which may result from the same brain damage that is producing the seizures. ⁽³⁾

Identifying the source of behavior problems in an individual child is the first step in dealing effectively with them. Depending on the severity of the behavior, the child's parents, physician and other professionals may be involved in this process. ⁽³⁾

Material and Methodology

Study design:

This study was descriptive, cross sectional, hospital based research, done in period extended from August to December 2016 to assess nurse knowledge regarding management of seizure disorders in Elmack Nimer hospital university.

Study area:

The study was done in Shendi town (River Nile state) which is located 172 Km North of Khartoum city, it is the southern part of the River Nile state, lies in the east of the River Nile and covering area of 30 Km square. Shendi have a university established in the early 1990s. have different faculties . it's population about 80000 persons (WHO 2003). Most of the people in Shendi worked as farmers, simple industrial work, and trade . The town considered as center of Galieen tribe and some other tribes.

Shendi had three big hospitals teaching hospital, and Elmek Nimer hospital university and military hospital plus others, hosbannaga hospital and elmiseiktab hospital.

Study setting:

El mack Nimir hospital university was established in July 2002.and consist of the following parts: theater, male/female surgery wards, male/female medicine wards, gynecology wards, pediatrics wards, laboratory, x-ray, u/s, renal unit, radiation and chemotherapy, endoscope, ICU and CCU. There are 130 nurses in the hospital. In Pediatrics words and units was specific setting for the study.

Study population:

This study includes all nurses' work in pediatric words in Elmek Nimer hospital university during period of study.

Sample size and Sampling technique:

60 nurses whom worked in pediatric wards to fulfill questionnaire and check list to assessed nurses knowledge regarding management of seizure disorders. By convenient method

Data collection tool:

The data was collected by questionnaire, and check list designed by the researcher to fulfill the purpose of knowledge the study based on literature review.

a- Questionnaire composed of (15) closed ended questions to fulfill the purpose of assessing nurses knowledge of the study. The questions were categories in to two parts :, part one, about socio demographic data, part two knowledge about seizure disorders.

b- Check list composed of (17) items to assess nursing role before, during and after seizure disorders:

Part one: nurse role before seizures. Part two nurse role during seizures. And part three nurse role after seizure.

Scoring system:

Scoring system was established by researcher in which submission of questions distributed in three categories if the nurse responded answer from 1-3 questions considered good knowledge above (80) .and answer from 1-2 questions considered fair knowledge (60-80) and answer 1 question considered poor knowledge below (60).

Data collection technique:

The data was collected within one week during morning and afternoon and night shift. Every questionnaire takes 5-10 minutes and the performance check lists vary between 3-5 minutes.

Data analysis:

The data was analyzed within 6 days by statistical package for social sciences (SPSS version 21) and presented in forms of tables and figures.

Ethical consideration:

was approved by ethical committee of research in faculty of post graduate and scientific research, before conduction the study. Verbal Permission have been taken from original director of the hospital and then head nursing. The researcher explained the purpose of the study to the nurse's participant and has assured them that data collected from questionnaire and check lists will remain confidential and it is not allowed for any person to identify it.

Results

Figure No (1): Distribution of study group according to their age.

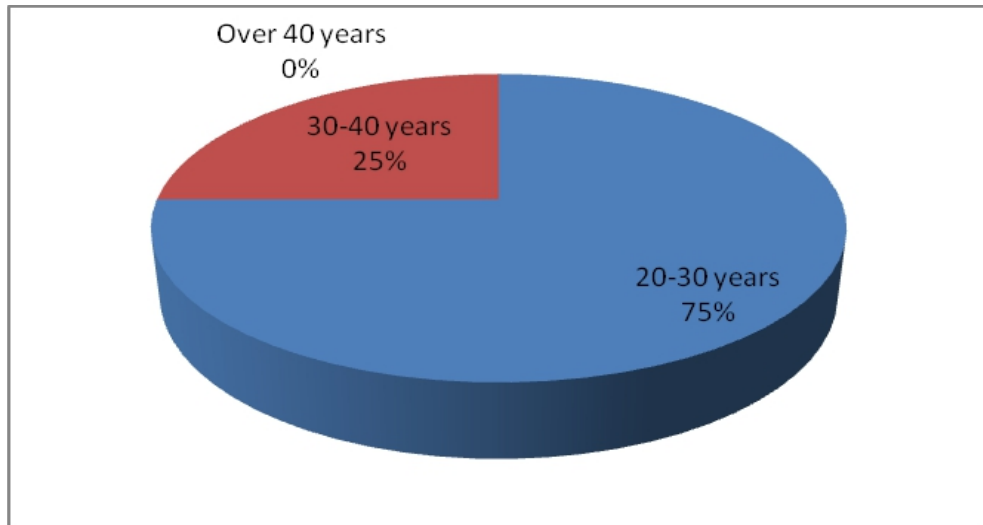


Figure (1) showed that most of study group (75%) their age range between (20-30), less than one third (25%) rang between (30-40) years ,and no variable (over 40) years.

Figure No (2) Distribution of study group according to their educational level.

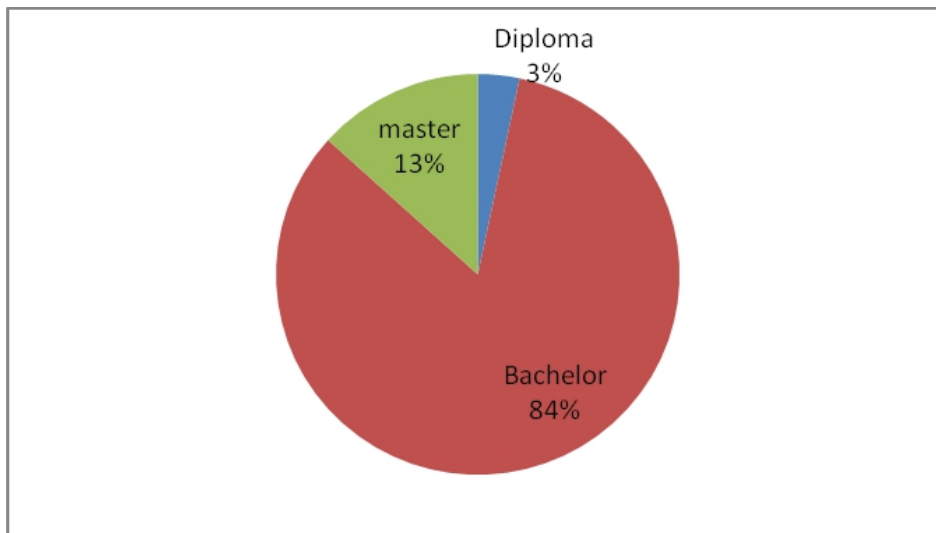


Figure (2) showed that majority of study group (84%) had Bachelor degree in nursing, (13% of them were master. and 3%had diploma in nursing.

Figure No (3): Distribution of study group according to their work experience.

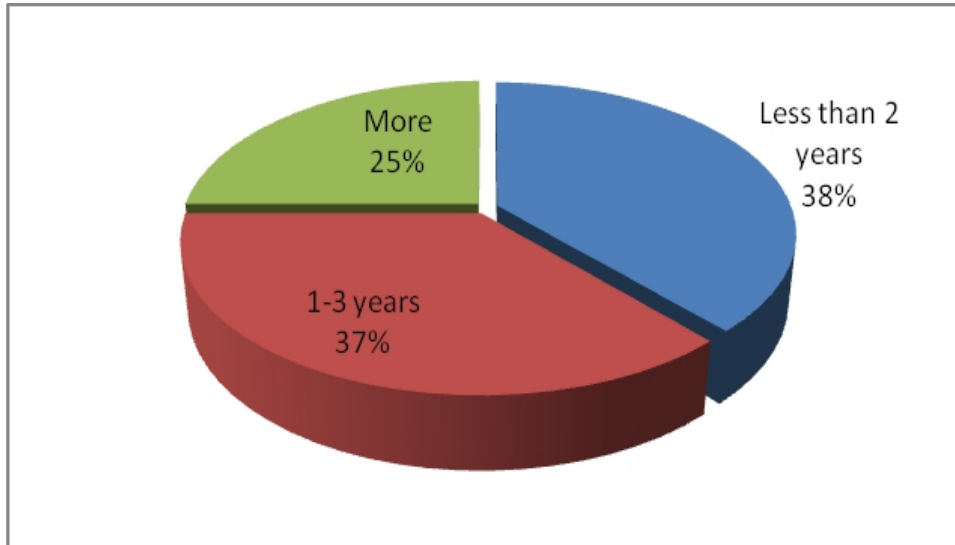


Figure (3) showed that more than one third (38%37%) of study group had work experience (2years and 1-3years)s respectively, and (25%) of them had more than three years.

Table No (1): Distribution of study group according to their knowledge about definition of seizure.

Seizure definition	Frequency	Percentage
Good	17	28%
Fair	22	37%
Poor	21	35%
Total	60	100%

Table (1) showed that more than one third (37%) of study group had fair knowledge about definition of seizure, one third (35%) had good knowledge, and (28%) of them had poor knowledge to definition of seizure.

Table No (2): Distribution of study group according their knowledge about causes of seizure disorder in children.

Causes	Frequency	Percent
Good	38	63%
Fair	12	20%
Poor	10	17%
Total	60	100%

Table (2) showed that about two third (63%) of the study group had good knowledge a about the causes of seizure disorder, fifth (20%) of them had fair. and (17%) had poor knowledge about causes of seizure.

Table No (3): Distribution of study group according to their knowledge about the main types of seizure.

Types of seizure	Frequency	Percent
Good	28	47%
Fair	23	38%
Poor	9	15%
Total	60	100%

Table (3) showed that more than one third of the study group (38%) had fair knowledge about the main type of seizure, less than half (47%) of them had good knowledge. And less than fifth (15%) of them had poor knowledge about main type of seizure.

Table No (4): Distribution of study group according to their knowledge about the clinical manifestation of seizure.

Manifestation of seizure	Frequency	Percent
Good	31	52%
Fair	19	31%
Poor	10	17%
Total	60	100%

Table (4) showed that more than half (52%) had good knowledge about clinical manifestation of seizure, one third (31%) of them had fair knowledge and less than fifth (17%) of them had poor knowledge about clinical manifestation of seizure.

Table no (5): Distribution of study group according to their knowledge about lab rotary test and diagnostic study of seizure disorders.

Diagnostic	Frequency	Percent
Good	35	58%
Fair	12	20%
Poor	13	22%
Total	60	100%

Table (5) showed that more than half (58%) of the study group had good knowlegde about labaratory test and diagnostic study of seizuredisorder, one fifth (20%) of them had fair, and more than fifh (22%) had poor knowlegde about labaratory test and diagnotic studyof seizure disorder.

Table No (6): Distribution of study group their knowledge about the main drugs used in treating seizure.

Drugs	Frequency	Percent
Good	28	47%
Fair	17	28%
Poor	15	25%
Total	60	100%

Table (6) showed that less than half of study group (47%) had good knowledge about the main drugs of seizure, less than one third (28%) had fair knowledge, and more than fifth (25%) had poor knowledge about the main drugs in used in treating seizure.

Table No (7): Distribution of study group according to their knowledge about the route of drugs administration.

Drugs route	Frequency	Percent
Good	24	40%
Fair	14	23%
Poor	22	37%
Total	60	100%

Table (7) showed that less half of study (40%) had good knowledge about route of drugs administration, and fifth (23%) of them had fair, and, more than one third (37%) had poor knowledge about route of drugs administration.

Table No (8): Distribution of study group according to their knowledge about the advice effect of seizure medication.

Effect of medication	Frequency	Percent
Good	25	42%
Fair	18	30%
Poor	17	28%
Total	60	100%

Table (8) showed that less than half of study group (42%) had good knowledge about advice effect of seizure, more than one (30%) had fair knowledge, and less than one third (28%) had poor knowledge about advice effect of seizure medication.

Table No (9): Distribution of study group according to their knowledge about the action of anticonvulsion drugs.

Action of anticonvulsion	Frequency	Percent
Good	18	30%
Fair	23	38%
Poor	19	32%
Total	60	100%

Table (9) showed that less than one third of study group(30%) had good knowledge about action of anticonvulsion, more than half (38%) had fair, and more than one third (32%) had poor knowledge about action of anticonvulsion.

Table No (10): Distribution of study group according to their knowledge about the equipment should be readily beside child with seizure.

Equipments	Frequency	Percent
Good	26	33%
Fair	15	25%
Poor	19	32%
Total	60	100%

Table (10) showed that less than one third of study group (33%) had good knowledge about equipment should be readily beside child with seizure. More than fifth (25%) had fair, and more than one third (32%) poor knowledge about the equipment should be readily beside child with seizure.

Table No (11): Distribution of study group according to their knowledge about the complication of seizure disorder.

Complication	Frequency	Percent
Good	30	50
Fair	15	25
Poor	15	25
Total	60	100%

Table (11) showed that half of study group (50%) had good knowledge about the complication of seizure, disorders. more than fifth (25%) had fair, (25%) poor knowledge regarding complication of seizure.

Table No (12): Distribution of study group according to their knowledge about prevention of injury during attack of seizure.

Prevention of injury	Frequency	Percent
Good	31	52
Fair	17	28
Poor	12	20
Total	60	100%

Table (12) showed that more than half of study group (52%) had good knowledge about prevention of injury during attack of seizure, less than one third (28%) had Fair, and fifth (20%) had poor knowledge about prevention of injury during attack of seizure.

Table No (13): Distribution of study group according to their knowledge in monitoring child behaviors before seizure.

Behaviors	Frequency	Percent
Good	52	87%
Fair	5	8%
Poor	3	5%
Total	60	100%

Table (13) showed that majority of study group (87%) had good knowledge in monitoring child behaviors before seizure, less than fifth (8%) had fair, and (5%) had poor knowledge in monitoring child behaviors before.

Table No (14) Distribution of study group according to their knowledge in observed child wear medical bracelets:

Medical bracelets	Frequency	Percent
Good	34	58%
Fair	13	21%
Poor	13	21%
Total	60	100%

Table (14) showed that more than half of study group (58%) had good **knowledge** in observing child wear medical bracelet, more than fifth (21%,21%) had fair and poor **knowledge** in observed child wear medical bracelets.

Table No (15): Distribution of study group according to their knowledge in monitored child's vital signs:

Vital signs	Frequency	Percent
Good	27	45%
Fair	18	30%
Poor	15	25%
Total	60	100%

Table (15) showed that less than half of study (45%) had good knowledge in monitoring child vital signs. More than one third (30%) had fair .and more than fifth (25%) had poor knowledge in monitored child's vital signs.

Table No (16): Distribution of study group according to their knowledge in prevention of factors that triggers seizure.

prevent factors that triggers seizure	Frequency	Percent
Good	33	55%
Fair	13	22%
Poor	14	23%
Total	60	100%

Table (16) showed that more than half of the study group (55%) had good knowledge in prevention of seizure triggers. Less than one third (22%) had fair and less than one third (23%) had poor knowledge in prevention of factors that triggers seizure.

Table No (17): Distribution of study group according to their knowledge in provide safe environment for child during seizure:

Safe environment	Frequency	Percent
Good	55	92%
Fair	3	5%
Poor	2	3%
Total	60	100%

Table (17) showed that majority of study group (92%) had good knowledge in providing safe environment for the child during seizure. Less than fifth (5%) had fair knowledge. And (3%) had poor knowledge in provide safe environment for child during seizure.

Table (18): Distribution of study group according to their knowledge in bed rails padded.

Bed rails padded	Frequency	Percent
Good	52	87%
Fair	6	10%
Poor	2	3%
Total	60	100%

Table (18) showed that majority of the study group (87%) had good knowledge in bed rails padded during seizure .less than fith, (10%) had air, and (3%) had poor knowledge in bed rails padded .

Table (19): Distribution of study group according to their knowledge in loosen child cloth.

Loosen child cloth	Frequency	Percent
Good	33	55%
Fair	17	28%
Poor	10	17%
Total	60	100%

Table (19) showed that study group more than half (55%) had good knowledge of loosen child cloth during seizure. +one third (28%) of them were fair, less than one third (17%) had poor knowledge.

Table (20): Distribution of study group according to their knowledge do not restrained the child.

Restrained the child	Frequency	Percent
Good	40	66%
Fair	10	17%
Poor	10	17%
Total	60	100%

Table (20) showed that two third (66%) of study group had good knowledge in not restrained child during seizure, less than fifth (17%, 17%) had fair and poor knowledge of not restrained child during seizure.

Table no (21): Distribution of study group according to their knowledge in avoid any thing by mouth.

Avoid any thing by mouth	Frequency	Percent
Good	43	72%
Fair	11	18%
Poor	6	10%
Total	60	100%

Table (21) showed that most of the study group (72%) had good knowledge in avoiding any by mouth during seizure, less than fifth (18%) of study group had fair, and less than fifth, (10%) had poor knowledge of avoiding any thing by mouth during child seizure.

Table No (22): Distribution of study group according to their knowledge provide suction and O₂ should be at hand .

suction and O₂	Frequency	Percent
Good	34	57%
Fair	20	33%
Poor	6	10%
Total	60	100%

Table (22) showed that more than half (57%) of the study had good knowledge of providing suction machine and O₂ at hand during seizure, and than one third (33%) had fair, and less than fifth (10 %) had poor knowledge to provide suction machine and O₂ at hand during child seizure.

Table No (23): Distribution of study group according to their knowledge in monitored child vital signs.

vital signs	Frequency	Percent
Good	29	48%
Fair	14	23%
Poor	17	29%
Total	60	100%

Table (23) showed that less half (48%) of study group had good knowledge in monitored child vital signs, more than fifth (23%) had fair and less than one third (29%) had poor knowledge in monitored child vital signs.

Table No (24): Distribution of study group according to their record of seizure time & duration.

Time & duration	Frequency	Percent
Good	43	72%
Fair	9	15%
Poor	8	13%
Total	60	100%

Table (24) showed that most (72%) of study group had good knowledge of record seizure and duration. Less than fifth (15%) had fair. and less than fifth (13%) had poor knowledge of record seizure time & duration.

Table No (25): Distribution of study group according their knowledge in checking child for any injury after seizure.

Injury after seizure	Frequency	Percent
Good	53	88%
Fair	6	10%
Poor	1	2%
Total	60	100%

Table (25) showed that majority t of study group (88%) had good knowledge in checking child for injury after seizure. Less than fifth (10%) had fair, and (2%) had poor knowledge in checking child for any injury after seizure.

Table No (26): Distribution of study group according to their knowledge to maintain child in a side position seizure:

Position after seizure	Frequency	Percent
Good	33	55%
Fair	16	27%
Poor	11	18%
Total	60	100%

Table (26) showed that more than half (55%) of study group had good knowledge to maintain child in side position after seizure. Less than one third (27%) had fair, and less than fifth (18%) had poor knowledge to maintain child in side position after seizure.

Table No (27): Distribution of study group according to their knowledge observed child should wear helmet after seizure.

Helmet after seizure	Frequency	Percent
Good	15	25%
Fair	22	37%
Poor	23	38%
Total	60	100%

Table (27) showed that more than fifth (25%) of study group had good knowledge observed child wear hamlet after seizure .more than one third (37%), (38%) had fair and poor knowledge observed child should wear helmet after seizure.

Table No (28): Distribution of study group according to their knowledge about psychological & reassurance for child and his family after seizure.

Psychological & reassurance support	Frequency	Percent
Good	18	30%
Fair	20	33%
Poor	22	37%
Total	60	100%

Table (28) showed that more than one third (30%) had good knowledge of psychological support & reassurance for child and his family after seizure. Less than one third (33%) had fair, and more than one third (37%) of had poor knowledge about psychological support & reassurance for child and his family after seizure.

Table No (29): Distribution of study group according to their knowledge in record postical period after seizure.

Record poetical period	Frequency	Percent
Good	42	70%
Fair	11	18%
Poor	7	12%
Total	60	100%

Table (29) showed that most (70%) of the study group had good knowledge in record seizure postical period .less than fifth (18%) had fair .and (12%)poor knowledge in record poetical period after seizure.

5.1 Discussion

A seizure is an electrical disturbance within the brain, resulting in changes of motor function, sensation, or cognitive ability ⁽¹⁾.

This study was done in Elmack Nimer university hospital to assess nurses knowledge regarding management seizure disorders in el mack Nmir hospital university in period extend from august to December 2016.

The study clarified that more than one third (35%) of study group had poor knowledge about seizure disorders and majority (87%) of study group had good knowledge regarding care of seizure. This results was agree with previous study (Hospital dose not offers opportunity for special courses on important subjects that are related to their work. this will enhance in their knowledge). ⁽⁸⁾.

The study to determined that half (50%) study group had good knowledge about prevention of complication during seizure.,and more than half 52% of and factor that tiiggers seizure attack this study agreed with literature review (precautions before seizure attack and factors that triggers seizure. ⁽⁸⁾

The study clarified that less than half (47%) of the study group had good knowledge about drugs used to treat seizure ⁽²⁾.

This study determined that majority (87%) good study group had good knowledge about prevention of complication during seizure and , 87%) of study group had study group had good knowledge about prevention of complication during seizure.

. The study reflected that most (75%) of study group had a bachelor degree in nursing sciences and had years of experience more than 2 years.

In regarding to the nurses' knowledge and their years of experience, the present study showed that neither nurses with experience of 2 years and more had good knowledge than nurses who had experience of less than 2 years this results disagree with previous study (new nurses had a score of performance higher than old nurses did) ⁽⁸⁾

The study revealed that about half (52%) of study group had good knowledge about clinical feature of seizure this may be related to their years of experience, less than half of study group (47%) had good knowledge about laboratory and diagnostic test that is good indicator ⁽¹⁾.

This study determined that majority (87%, 87%) of study group had good knowledge in monitoring child behaviors and bed rails padded before seizure during seizure. ⁽¹⁾

And More than half (58%) of study group had good knowledge in observed child wear medical bracelet.

The study showed that less than half (45%) of study group Had good knowledge in measuring child vital signs, and more than half (55%) of them had good knowledge in prevention of factors that triggers seizure.

The study reflected that most (72%) of study group had good knowledge in record of seizure time and duration after seizure and majority (88%) of study group had good knowledge in checking child for any injury after seizure agreed literature review ⁽²⁾.

The study presented that most (70%) of study group had good knowledge in record poetical period after seizure. one third (37%) of study group had good knowledge in psychological support and reassurance child and his family ⁽⁷⁾.

5.2 Conclusion

The study was concluded that:

The study clarified that about more than one third (35%) of study group had poor knowledge about seizure disorders and majority (87%) of study group had good knowledge regarding management of seizure.

The study revealed that half (50, 52%) of study group had good knowledge about prevention of complication during seizure and factor that triggers seizure attack.

This study determined that majority (87%,87%) of study group had good knowledge in monitoring child behaviors before seizure and bed rails padded during seizure.

5.3 Recommendations

The study was recommended in the following points that nurse administrator should applied:

- 1- Continuous in-services training and workshops for nurses through educational programs must be established.
- 2- In addition, a follow-up educational sheet must be designed in order to evaluate nurses; progress in each educational session.
- 3- The essential need for refreshing courses to inform nurses about updating knowledge in the field of seizure disorders.
- 4- Particular attention should be given to the theoretical part in the training of nurses and nursing supervisors who work in the field of care of children with seizure disorders. This would help to improve nurses' knowledge and skills

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Shendi university

Faculty of Post graduate of nursing sciences

**Questionnaire about assessment of the nurses knowledge
and performance regarding care of seizure disorder in
children under 5 years**

Part one: socio demographic data:

1-Age:

a-20-30 { } b-30-40 { } c-over { }.

2-level of education:

a-diploma { } b-bachelor { } c-master { }

3- Years of work experience:

a-less then 2years { } b-1-3 years { } c-more { }

Part two: knowledge about seizure disorders:

4- Definition of seizure:

a- a proximal clinical event of central nervous system { }
b- abnormal electrical discharge { } c- excessive excitability { }
d- changes in motor functions { }

5- The causes of Seizure disorder in children:

a-neurologic disorder { } b-traumatic disorder { }
c-infectious disorder { } d- fever { }

6-The main types of seizure include:

a-generalized { } b-partial seizure { }
c-infantile spasm { } d- febrile seizure { }.

7- The clinical manifestation of seizure:

a- loss of consciences { } b- change behavior { }
c- head and eye twist in opposite direction { }
d- disturbance in autonomic nervous system { }

8-Labrotary test and diagnostic study of seizure disorders in clued:

- a-electroencephalogram { } b-complete blood count { }
c-computed tomography scan { } d- lumbar puncture { }

9- The main drugs used in treating seizure:

- a- diazepam { } b- Phenobarbital { } c- lorazepam { }
d- phonytion { }

10- The route of drugs administration:

- a- intravenous route { } b- intramuscular { } c- rectal route { }
d- oral route { }

11- The advise effect of seizure medication:

- a-dizziness { } b-drowsiness { } c- nausea { } d- ataxia { }

12- The action of anticonvulsant drugs are:

- a-control the seizure { } b-cure the seizure { }
c- prevent respiratory compromise { }

13- The equipment should be readily beside child with seizure:

- a- oxygen source { } b- suction machine { } c- mouth piece { }

14- The complication of seizure disorder:

- a- injures { } b-apnea { } c-sudden un expected death { }
d- status epilepticus

15 – Prevention of injury during attack of seizure:

- a-raise bed side rails{ } b-remove any tight clothes { } c-maintain open air{ }
d- provide safe environment { }

Chick list

Steps	Good	Fair	Poor
A: structured observational checklist to assess nurses' performance before during after seizure:			
A. Data about Nurses' role during seizure such as:			
Part one: nursing role before seizure:			
1- monitor child behaviors.			
2- child should wear medical bracelets			
3- monitor child's vital signs.			
4- prevent factors that triggers seizure.			
Part tow: nurses role during seizure:			
5- provide safe environment for child.			
6- bed rails padded.			
7- loosen child cloth.			
8- do not restrained the child.			
9- avoid any thing by mouth.			
10- suction and O ₂ should be at hand.			
11- monitor vital signs.			
12- record seizure time & duration.			
Part three: about Nurses' role after seizure:			
13- Chick child for any injury.			
14- Maintain child in a side position.			
15- Child should wear helmet.			
16- psychological & re assurance for child and his family.			
17- record postical period.			