Adult Emergency Nurse Protocol

Health
South Eastern Sydney
Local Health District

Seizure

SESLHDPR/497

Aim:

- Early identification and treatment of a patient following a seizure.
- Early initiation of treatment / clinical care and symptom management within benchmark time.

Assessment Criteria: On assessment the patient may have one or more of the following presenting symptoms:

- Tonic - clonic seizure activity
- Partial / Focal seizure (limited to one side of the body or extremity)
- Alteration to mental status
- Tonic seizure activity
- Absent seizure activity
- Atonic seizure activity
- Persistent eye deviation

Escalation Criteria: Immediate life-threatening presentations that require escalation and referral to a Senior Medical Officer (SMO):

- Status Epileptics (> 30 min continuous seizure activity)
- Hypotension
- Pregnancy
- Traumatic head injury / fall
- History of brain cancer
- History of drug and alcohol abuse / overdose
- Suspected Stroke / TIA
- Apnea
- Preceding severe headache

Primary Survey:

- Airway: patency
- Circulation: perfusion, BP, heart rate, temperature
- Breathing: resp rate, accessory muscle use, air entry, SpO_2.
- Disability: GCS, pupils, limb strength

Notify CNUM and SMO if any of the following red flags is identified from Primary Survey and Between the Flags criteria.[1]

- Airway - at risk
  - *Partial / full obstruction*
- Breathing - Respiratory distress
  - *RR < 5 or >30 /min*
  - *SpO_2 < 90%*
- Circulation – shock / altered perfusion
  - *HR < 40bpm or > 140bpm*
  - *BP < 90mmHg or > 200 mmHg*
  - *Capillary return > 2 sec*
  - *Postural drop > 20mmHg*
- Disability - decreased conscious level
  - *GCS ≤ 14 or any fall in GCS by 2 points*
- Exposure
  - *Temperature < 35.5°C or > 38.5°C*
  - *BGL < 3mmol/L or > 20mmol/L*

History:

- Presenting complaint
- **A**llergies
- **M**edications: Recent non-compliance with medications, Anticoagulant Therapy, Anti-hypertensive medications, Diabetic medications, Analgesics, Inhalers, Chemotherapy, Non-prescription medications, any recent change to medications.
- **P**ast medical past surgical history relevant:
  - History of seizures / epilepsy, cancer, infections, CVA / TIA, metabolic disorders, ingestion of toxins, drug and alcohol use, stress, lack of sleep ; recent trauma or fall or head injury; recent overseas travel or immigration; fevers; pregnancy
- **L**ast ate / drank and last menstrual period (LMP)
- **E**vents and environment leading to presentation i.e. Red flags – History of central nervous system (CNS) pathology (stroke, neoplasms, recent surgery)
- Pain Assessment / Score: **PQRST** (Palliating / provoking factors, Quality, Region / radiation, Severity, Time onset)

Systems Assessment:

- **Focused neurological assessment**: *Inspection / Palpation / Auscultation (listen)*
  - Inspect - Level of consciousness, restlessness, pupil size and reaction, abnormal posturing / behaviour, tongue biting, incontinence
  - Listen- Patient complaints; headache, nausea or vomiting
  - Palpate- Equal limb strength, signs of injury

Notify CNUM and SMO if any of the following red flags is identified from History or Systems Assessment.

- History of brain cancer
- Drug and/or alcohol abuse
- Unequal pupils
- Traumatic head injury / fall
- Severe headache
- Unequal limb strength
- Pregnancy / Post- partum (3/12)
- Hypoglycemia
- Recent Procedure

Investigations / Diagnostics:

Bedside:

- BGL: If < 3mmol/L or > 20mmol/L notify SMO
- ECG: look for Arrhythmia , AMI
- Urinalysis / MSU and βHCG
- Postural Blood Pressure (3mins > 20mmHg)

Laboratory / Radiology:

- **Pathology**: Refer to local nurse initiated **STOP**
  Quantitative ßHCG if urine positive for same
  Group and Hold (if bleeding suspected)
  Blood Cultures (if Temp≥38.5 or ≤35°C)
- **Radiology:** Refer to local nurse initiated **STOP**

Nursing Interventions / Management Plan:

Resuscitation / Stabilisation:
- Oxygen therapy and cardiac monitoring [as indicated]
- IV Cannulation (consider large bore i.e. 16-18 gauge)

Management of an active seizure:
- Airway maneuver
- Administer oxygen
- Roll to recovery position
- Full set of vital signs including BSL
- Administer medications as per local protocol

Symptomatic Treatment:
- **Antiemetic:** as per district standing order
- **Analgesia:** as per district standing order
- **IV Fluids:** as per district standing order

Supportive Treatment:

- Nil By Mouth (NBM)
- Monitor vital signs as clinically indicated (BP, HR, T, RR, SpO_2)
- Monitor neurological status - GCS 30 minutely then hourly (as per monitoring recommendation above)
- Fluid Balance Chart (FBC)
- Monitor pain assessment / score

Practice Tips / Hints:

- Monitor and assess vital signs including GCS, pupil response and limb strength every 30 min for the first hour and then hourly during the post ictal phase
- During a generalised seizure the patient may experience a period of transient apnea and hypoxia. In a physiologic effort to maintain cerebral oxygenation, the patient may become hypertensive
- Hyperthermia, hyperglycemia and lactic acidosis are common following seizures with vigorous muscle activity. These symptoms usually resolve within one hour.
- A seizure is caused by a sudden and disorderly discharge of cerebral neurons resulting in a change to behavior, sensory perception or motor activity. Seizures are common: approximately 10% of the population will have a seizure within their lifetime and more than 50 million people worldwide are diagnosed with Epilepsy. (Craft, Gordon and Tiziani, 2011; WHO, 2015)
- It is important to assess the pathophysiology of the seizure to ensure early recognition of life threatening causes and timely treatment is commenced (Craft, Gordon and Tiziani, 2011; Pillow, 2015)
- There are more than 40 different types of seizure which can be grouped into three classifications: Partial, Generalised and Unclassified seizures (Craft, Gordon and Tiziani, 2011).
  - Partial or focal seizures: usually involve one hemisphere of the brain. The area of epileptic neuronal activity will dictate the seizure symptoms. Partial seizures can also be subdivided into simple (no loss of consciousness or awareness) or complex seizures (lowered level of consciousness or awareness) (Craft, Gordon and Tiziani, 2011)
  - Generalised seizures can be subdivided into: Absence, Myoclonic, Tonic-Clonic, Tonic and Atonic seizures (Craft, Gordon and Tiziani, 2011)
  - Unclassified seizures involve seizure activity which does not follow the pattern of either partial or generalised seizures (Craft, Gordon and Tiziani, 2011).

Further Reading / References:

1. Craft, J., Gordon, C., and Tiziani, A. (2011). Understanding pathophysiology. Mosby, Sydney.
2. Emergency Care Institute (2021) Seizures https://aci.health.nsw.gov.au/networks/eci/clinical/clinical-resources/clinical-tools/neurology/seizures
3. Pillow, T. (2015). Seizure assessment in the Emergency Department. http://emedicine.medscape.com/article/1609294-overview
4. SESLHDPR/283 Deteriorating Patient – Clinical Emergency Response System for the Management of Adult and Maternity inpatients
5. The World Health Organisation (2015). Epilepsy fact sheet. http://www.who.int/mediacentre/factsheets/fs999/en/

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- Murphy, M (2007) Emergency Department Toolkits. Westmead Hospital, SWAHS
- Hodge, A (2011) Emergency Department, Clinical Pathways. Prince of Wales Hospital SESLHD.

Revision and Approval History

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