**BIRZEIT UNIVERSITY**

**CRITICAL CARE NURSING 2**

CASE STUDY 1

( Brain stem stroke syndrome .)

STUDENT NAME: Aya Arouri .

STUDENT NUMBER :1191397 .

INSTRUCTER NAME : Fadi Saai .

DATE : 29- 4– 2022 .

**Pt Initials** : H.M .

**Age** : 29 years .

**Sex**: Female .

**Hospital**: Ramallah medical complex , **Ward** : ICU Kuwaiti .

**Bed number** : 5.

**Date of Admission** : 24 - 4 -2022 .

**Informants:**

System , patients family , flowsheet , critical book , nursing in ICU Kuwaiti .

**Chief Complaints :**

Rt side weakness , numbness and dysarthria as reported **.**

No vomiting .

No LOC .

No Hx of head trauma .

**History of Present Illness**

 In 24-4 ,Pt presented to alwatani hospital complication Rt side weakness , numbness and dysarthria as reported , in alwatani hospital GCS 12\15 as reported at 8;00am then the Pt deteriorate and intubated at 9:10am , brain Ct done at arrival to alwatani hospital and repeated after deterioration and showed Lt frontal intracerebral HGE with intraventricular extension , after that Pt transferred to rafedia hospital then to Ramallah medical complex at 1;30 am , She was diagnosed in Brain Stem Stroke Syndrome ,Specialists expect the cause of the stroke to be AVM. .

**Past Medical History :**

- Free .

**Past Surgical History :**

- CS

**Nutritional History**:

- In the first two days of the hospital, the patient, NPO, remained on the third day, the gag reflex returned normal to the patient, So they started a PF water diet, on the day the information was collected 29-4 the patient was on soft diet .

Pt take I.V.F( add 20 mEq potassium in every 500cc NS 0.9% Q5hr ) .

**Allergies**: None

**Personal Habits (life style) :**

The patient is conscious , But she's having a hard time talking.

**Physical Assessment:**

**Vital Signs:**

Temp : 36.2

Spo2 : 93%

HR : 65 bpm

BP : 131\83

RR : 24 breath per min

**Assessment :**

**When do GCS test , Pt has 15\15 .**

**\* Head and Face :**

No health history for head trauma ,the skin no cyanosis or pallor , monitored the patient’s facial expressions , the head and face skin it was neither excessively dry nor sweaty .

The patient had drain and EVD in the head, so the left text of the patient's hair was shaved, drain was removed on the third day of her presence in the hospital, so she has stitches in head on the left side ( in 29-4) .

 No temperature, when touching the skin .I Check the presence and rate of pulse at the head Temporal artery (normal ), A lymph node in face is normal in size and shape .

**\*Eyes:**

 Eyes open spontaneously , No pain or blood in eyes ,the eyes are the same, the eyelid openings are equal ,I did a six cardinal filed test by moving my finger to examine the eye muscle and nerve 3 and the patient's eye movements with finger movement were normal , the eyes are not swollen. **.**

Pupils :

Both pupils reactive to light present corneal reflex bilateral (test corneal reflex) and it gave a normal reaction , The pupils are round and equal , there is no redness.

**\*Ears:**

Patient no ear pain, and hears well in her both ears .

The symmetry, shape and size of the ears (normal), and the color of the ears is the same as the color of the rest of the body. No blood comes out of the ear, There is no auricle pain , There is no tragus pain ,When doing a whisper test the patient hears well from both ears .

**\*Nose :**

No health history for nose, The patient can smell both nostrils well ,He does not have sinusitis ,No any secretion.

**\*Mouth and Throat :**

There's no healthy history of mouth and throat.

The throat is not inflamed, there is no decay, the throat, gums and lips are not blue, the patient had ET tube and was removed the day before (28-4) there were traces of blood on the teeth when the evaluation was carried out, at first the patient NPO and sedation, after the arrest of the sedation was examined gag reflex (present) after the operation in four days (Her feeding regimen began after the operation in syringe feeding, a watery diet and then soft diet ) .

 **\*Neck and shoulders:**

Monitored the color and shape of the neck and shoulder , the symmetry in the patient's shoulder, , the thyroid gland ( its normal ),the neck no pallor.

Pt had central line in Rt jugular vein ,The neck and shoulder skin it was neither excessively dry nor sweaty , No Temp , Check the presence and rate of pulse at the neck carotid artery it was normal , Palpate the areas over each shoulder blade and the patient does not complain of any pain .

In general the patient suffers from hemiplegia (right part weakness) so the right shoulder in weakness .

**\*Lungs and Thorax and Breast** :

Breasts :Nipples are present and on the same level , palpate the chest and there is no pain or cyanosis , No cough.

She has abnormal breathing pattern. ( chart retraction ) .

**\*Cardiocirculatory System :**

the patient's is no pallor, there is no cyanosis in the lips or nails , The pulse is clear ( Apical) and all artery pulse is present .

The heart rate is regular and normal range The pulse was calculated in apical and was 70 bpm (normal ) , The BP 131\83 (normal ),The heart's sound no murmur.

Very rapid blood flow (high flow) directly from the artery to the vein (due to AVM) may cause the heart to work hard to keep up, leading to heart failure, and may increase blood pressure. Therefore, your heartbeat and blood pressure should be monitored continuously.

**\* Abdomen and Gastrointestinal system:**

The pulse in the main arteries in the abdomen ,there is no bruise on the abdomen , bowel sounds were regular and normal , Abd soft lax

**\*Arms and Hands:**

The left hand is normal in its movement but the right hand suffers from weakness because the patient in general suffers from hemiplegia (the right side has weakness and the left side is normal and does not suffer from weakness .

There is no bed source in elbow , no temp or cyanosis, Pt has pink canulla in Rt hand .

Texture check for arms & hands: The leather is smooth and all the same , the skin normal color .

Turgor test: + 1 rating (normal) , no edema .

I did palpation for peripheral pulse (Radial ,ulnar and brachial artery) , Every pulse in all artery is present (I was able to feel them ).

Lt side body power 5\5 but Rt side body power 0\5 .

**\*Legs and feet:**

The left leg is normal in its movement but the right leg suffers from weakness because the patient in general suffers from hemiplegia (the right side has weakness and the left side is normal and does not suffer from weakness .

There is no bed source, no temp or cyanosis .

Texture check for legs & feet: The leather is smooth and all the same

Turgor test: + 1 rating (normal) , no edema , I did palpation for peripheral pulse ( Femoral , popliteal , posterior tibial and dorsalis pedis artery ) , Every pulse in all artery is present (I was able to feel them)

Lt side body power 5\5 but Rt side body power 0\5 .

Lower limbs no signs of DVT RT lower limb connected to pneumatic boot .

**\* Genitourinary :**

No health history , do not suffer from constipation or diarrhea, have a diaper .

Pt has folly's catheter , UOP 70-80cc\hr , Normal urine color is not dark and

does not contain blood .

**\*Neurological system :**

Conscious (full oriented ) , She says she still has a hard time talking , When do GCS test , Pt has 15\15 .

The Pt hemiplegia ,When do power body test (legs and arms) she can movement the Lt side body power 5\5 but Rt side body power 0\5 .

**Diagnostic Procedures:**

Radiology (x-rays, CT scan, MRI, ultrasound…….etc), ECG:

Brain Ct done at arrival to alwatani hospital and repeated after deterioration and showed Lt frontal intracerebral HGE with intraventricular extension

 **Laboratory Data:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test | Date | Patient’s Value | Normal Value | Interpretation/Reason for abnormality | Treatment done for abnormal findings |
| WBC | 24-4 | 3.8 | 4.6-11 k\ul | Abnormal suggest the presence of. |  |
| WBC | 29-4 | 4.7 | 4.6- 11k\ul | The examination improved from before |
| HGB |  24-4 | 7.4 | 12-16 'g\dl |  |  |
| HGB | 29-4 | 10 | 12-16g\dl | The examination improved from before |
| RBC | 24-4 | 3.29 | 4.1-5.5 M\uL |  |    |
| RBC | 29-4 | 3.95 | 4.1-5.5 M\uL | The examination improved from before |

1. **Pathophysiology**

**Summary and related to the patient:**

**Defined**

**Brainstem stroke syndrome :**

Specific symptoms caused by vascular injury to an area of brain . As the brainstem contains numerous cranial nuclei and white matter tracts, a stroke in this area can have a number of unique symptoms depending on the particular blood vessel that was injured and the group of cranial nerves and tracts .

The cause of a brain stem stroke cause : loss of blood supply to the brain. This can occur for a number of reasons, including a blood clot that travels through the bloodstream and gets lodged in a blood vessel in the brain (ischemic stroke) or accumulation of blood in the brain after the rupturing of a blood vessel causing increased pressure inside the skull (hemorrhagic stroke) or AVM (Arteriovenous malformations )

**S&S :**

1- Sudden vertigo and ataxia .

2- With or without weakness.

3-Diplopia .

4- Slurred speech and decreased level of consciousness.

5- Paralysis :

 \*Hemiplegia (Paralysis in one side of the body ) .

 \*Paraplegia (Paralysis of the lower limb of the body ) .

 \* Quadriplegia ( (paralysis of both arms and legs ) .

6- hemisensory loss .

**Causes :**

1- Most causes commonly infarcts, of the brainstem.

2- Ischemic stroke

3- AVM

4- Hemorrhagic stroke

**There are many risk factors for strokes :**

1- HTN .

2- High cholesterol

3- Diabetes

4- Heart conditions and irregular heartbeat

5- Smoking

6- Narrowing of the arteries

7- Obesity

8- Metabolic syndrome

9- Alcohol or drug abuse

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**AVM :**

Happen when a group of blood vessels in your body forms incorrectly. In these malformations, arteries and veins are unusually tangled and form direct connections, bypassing normal tissues. This usually happens during development before birth .

**Medications:**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Generic Name | Trade Name | Dose | Route | Rationale | Action | Contra- Indications | Side Effects | Nursing Consideration |
| 1 | Paracetamol | Perfalgan  | 1 mg | IV Q 8 hr . | Painkiller & reduce fever  | It work by blocking chemical messengers in the brain that tell us we have pain. | Patients with hypersensitivityto paracetamol | decrease BPincrease HR- skin rash | Give it normal (run ) without regulatorIt is used for 10 days if it is intended to relieve pain |
| 2 | Rocephin  | ceftriaxone | 1mg | IV Q 12hr | antibiotic | Treat many kinds of bacterial infections | patients with known allergy to the cephalosporin class of antibiotics. | - aginal itching or discharge- Diarrhea -abnormal liver function tests | ----- |
| 3 |  Vancomycin   | Vancomycin | 500mg | IV Q 12hr | Glycopeptide antibiotics | When take IV :To treat serious infections in other parts of the body. | In Pt with hypersensitivity to antibiotic . | - low potassium- Nausea- Stomach pain. | Best known for the side effect of the red man syndrome or the sudden redness after initiating the medication |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **4** | Epanutin | Phenytoin | 100mg  | IV Q 8hr | Adjunct anti-epileptic drugs | Reduces the risk of seizures by limiting the spread of the electrical discharges in the brain that occur in epilepsy. | If Pt has allergic to phenytoin sodium if Pt has also taking delavirdine or telaprevir . | Headaches.feeling drowsy, sleepy or dizzy.Feeling nervous, unsteady or shaky. | Control BP adequately prior to initiation of therapy and closely monitor and control during therapy |
| **5** | Famotidine  |  Famotidine | 20 mg  | IV Q12hr | H2 antagonists | -Histamine-2 blocker that works by decreasing the amount of acid the stomach produces-To treat and prevent ulcers in the stomach and intestines. | -Patients with serious hypersensitivity -To famotidine itself or any component of the formulation | - Seizure;- Fast or pounding heartbeats, sudden dizziness |  |

**Reflection *:***

**I chose the condition because it was new to me and because the cause of the occurrence of Brainstem stroke syndrome in this case is AVM, which is a very rare cause.**

**I wanted to know more about the disease and the patient's condition.**

**I knew the causes, causes and complications that might occur, how to treat it and what medications and care we could provide.**

**Nursing care Plan**

|  |  |  |  |
| --- | --- | --- | --- |
| **Diagnosis** | **Assessment** | **Intervention** | **Rational** |
| Pt risk for Impaired Physical Mobility r/t neuromuscular impairment | -Monitor the lower extremities for symptoms of DVT .-Observe the affected side for color, edema, or other signs of compromised circulation.Planning:Patient will maintain skin integrity. | -Inspect skin regularly, particularly over bony prominences. Gently massage any reddened areas and provide aids such as sheepskin pads as necessary.- Change positions at least every 2 hr.- Elevate arm and hand- Provide full range of motion four or five times a day  | -Pressure points over bony prominences are most at risk for decreased perfusion. Circulatory stimulation help prevent skin breakdown and decubitus development.- Frequently changing the position of the patient can reduce the risk of tissue injury.- Promotes venous return and helps prevent edema formation.- to maintain joint mobility.Weakness is observed in a particular area or partial or complete paralysis |
| Pt risk for Impaired Verbal Communication r\t loss of facial/oral muscle . | - Determine the area and degree of brain participation and dysplasia in the patient- Use GCS to assessment (eyes contact , verbal response , motor response ) -Ask the patient to follow simple commands (“Close and open your eyes,” “Raise your hand”) | - Pay attention to errors in the conversation with the patient and make your feedback.-Give a score to GCS and find out the deficiency- Provide alternative methods for the patient to communicate with others. | - The GCS test was performed on the first day of admission to the hospital and she received a score of 12/15 and on the day of the information the test score was 15/15 .- An improvement was observed in the patient's words every day and reported |

**REFERENCES :**

1- <https://radiopaedia.org/articles/brainstem-stroke-syndromes#:~:text=Brainstem%20stroke%20syndromes%2C%20also%20known%20as%20crossed%20brainstem,to%20lesions%2C%20most%20commonly%20infarcts%2C%20of%20the%20brainstem>.

2- <https://www.belmarrahealth.com/brain-stem-stroke-causes-symptoms-treatment/>

3- [Arteriovenous Malformations | Johns Hopkins Medicine](https://www.hopkinsmedicine.org/health/conditions-and-diseases/arteriovenous-malformations)

4- <https://www.drugs.com/rocephin.html#side-effects>

5- [label (fda.gov)](https://www.accessdata.fda.gov/drugsatfda_docs/label/2009/0550585s063lbl.pdf#:~:text=Rocephin%20is%20contraindicated%20in%20patients%20with%20known%20allergy,cephalosporin%20class%20of%20antibiotics.%20Neonates%20%28%E2%89%A4%2028%20days%29) .

6- <https://www.drugs.com/vancomycin.html>

7- [Vancomycin (Vancocin) Nursing Considerations | NURSING.com](https://nursing.com/lesson/drug-vancomycin-vancocin/#:~:text=So%20with%20vancomycin%2C%20sometimes%20we%20can%20see%20side,vancomycin.%20It%20may%20cause%20nephrotoxicity%20and%20anaphylaxis.%20)

8- [Vancomycin - Mechanism, Indication, Contraindications, Dosing, Adverse Effect, Interaction, Renal Dose, Hepatic Dose | Drug Index | Pediatric Oncall](https://www.pediatriconcall.com/drugs/vancomycin/1035#:~:text=Vancomycin%20is%20contraindicated%20in%20patients,with%20known%20hypersensitivity%20to%20this%20antibiotic.)

9- [Epanutin - Phenytoin uses, dose and side effects - zeepedia.com](https://zeepedia.com/medicines/epanutin/)

10- <https://www.drugs.com/famotidine.html>

11- <https://www.bing.com/search?q=Famotidine++Contra-+Indications%5C%5C&qs=n&form=QBRE&sp=-1&pq=famotidine+contra-+indications%5C&sc=2-31&sk=&cvid=A9BAA747247045A68FF3EE950114F78E>