**MASENO UNIVERSITY**

**SCHOOL OF NURSING**

**DEPARTMENT OF MEDICAL SURGICAL NURSING**

**COURSE: PEDIATRICS**

**COURSE CODE: MNS 301**

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**ASSIGMNENT: PEDIATRIC CASE STUDY**

**ADMISSION: MN/00068/017**

**SIGNATURE:-**

**PEDIATRICS CASE STUDY**

**BURKITT’S LYMPHOMA**

1. DEMOGRAPHIC DATA

Name: C. O. O

Age: 9 years

Sex: male

Ward: Obama paediatric ward

Bed number: 3

Date of admission: 7th January 2020

Medical diagnosis: Burkitt’s lymphoma

Next of kin: M.A.O

Relationship : Mother

1. LITERATURE REVIEW

DEFINATION OF THE CONDITION

Burkitt’s lymphoma is a highly aggressive type of non-hodgkin lymphoma characterized by the translocation and deregulation of the c-MYC gene on chromosome 8. NHL is more common in children less than ten years most commonly boys. Moreover, children with congenital and acquired immune deficiencies, include children post organ transplant, have a higher risk of developing NHL. Children with AIDS often present with primary lymphoma of the CNS. Tumors proliferate rapidly and children have an advanced disease at diagnosis. Survival rate >90%

The four main types of non-hodgkin lymphoma include:

* Burkitt’s lymphoma
* Lymphoblastic lymphoma
* Large B cell lymphoma
* Anaplastic large cell lymphoma

**Causes**

* Virus- EBV( Epstein- Barr virus)
* Malaria – chronic severe falciparum malaria
* Genetics- chromosomal abnormalities t(8;14)- 80%, t(8;22)- 15%, t(2;8)- 5%, leads to activation of c-MYC oncogene
* Immunologic- HIV infection

**Predisposing factors**

* Bellow ten years
* Male gender
* Congenital and acquired immune deficiencies
* Post organ transplant
* HIV/AIDS.

**Epidemiology**

Three distinct forms of Burkitt’s lymphoma have been recognized with a basic difference in epidemiology

1. Endemic- common in the equatorial Africa and New Guinea with incidence at approximately 50-fold higher in Africa.

It accounts for 30 to 50% of all childhood cancers in equatorial Africa with 3 to 6 cases per 100,000 children per year. Peak incidence between age 4 to 7 years with male: female ratio of 2:1

1. Sporadic ( non-endemic)- it is seen in the US and Western Europe. It accounts for 30% of paediatric lymphomas in the US with incidence of 3 cases per million persons in a year in the US and 2 cases per million persons in Europe. Peak incidence in children aged 11 years and adults below 35 years. Male to female ratio is 3 or 4:1
2. Immunodeficiency – associated – it is most commonly seen in HIV patients and less commonly in patients with other causes of immunodeficiency eg recipients of organ transplants. Mostly affects those with high CD4 count >200cells/microL

**Pathophysiology from normal to disease state**

The development of burkitts lymphoma depends upon constitutive expression of c-MYC proto-oncogene located at the chromosome 8q24 which encodes the MYC protein transcription factor. This transcription factor modulates expression of target genes that regulate many cellular processes including cell growth, division, death, metabolism, adhesion and motility.

In normal cells, c – MYC is found in heterodimeric complexes with related protein MAX. These heterodimers bind to the E box consensus sequence and directly activate transcription. The MYC-MAX interaction is required for c MYC to stimulate transcription and cell proliferation. C-MYC activity is normally regulated by the amount of MAX available to form MYC-MAX heterodimers and by competition from complexes formed by MAX and other proteins.

In Burkitts’ lymphoma there is inappropriately high expression of the c – MYC transcription factor through the following mechanisms:

* Mutation of 5’ regulatory regions normally present within the c-MYC DNA
* Mutation of the c-MYC gene resulting in amino acid substitutions that stabilize the c- MYC protein and decrease proteosome – mediated degradation thus increasing half-life.
* Immunoglobulin enhancers.
* Chromosomal translocation

The over expression of the c- MYC is responsible for alterations that support rapid growth of burkitt’s lymphoma tumor cells.

**Clinical manifestations**

* Abdominal mass mimicking appendicitis
* Headaches
* Nausea and vomiting
* Petechiae
* Bruising
* Bleeding
* Bone pain
* Respiratory distress from compression of the trachea by a mediastinal mass
* Central nervous system symptoms such as paraplegia, sphincter abnormalities, cerebrospinal fluid pleocytosis and cranial nerve palsies
* When the tumor is maxillary, it spreads to involve the orbit and presents as proptosis, altered vision, and disfigurement.
* When the tumor affects the jaw, it is associated with disfigurement, loosening of teeth, halitosis(a foul smelling odour from the mouth.), difficulty feeding and speech.
* Abdominal tumor presents with distension, pain, constipation, diarrhoea and difficulty in breathing.

**Diagnosis and diagnostic tests**

* Biopsy – from bone marrow, pleural effusion, ascites, an affected node or mass.
* Staging to avoid delay in treatment
* Lumbar puncture to assess for marrow and CNS involvement
* CT scan of the affected area, chest, abdomen and pelvis.
* Nuclear studies such as bone and PET scans to identify any other sites of disease.
* Laboratory studies such as CBC- complete blood count would indicate Neutrophils> 1000/ul; Hb> 7g/dl and platelets 150,000/ul, liver and kidney function tests, electrolytes, calcium, phosphorus, magnesium, lactate dehydrogenase( LDH)- elevation indicates poor prognosis, uric acid and urinalysis.
* Clinical diagnosis- rapid growing tumors of the jaws or the abdomen, loose teeth, disfigurement
* Histology- “starry sky appearance” – sheets of small, undifferentiated cells with interspersed tingible- body macrophages
* HIV serology

**Staging of burkitts’ lymphoma**

1. Stage A : solitary extra-abdominal site
2. Stage AR: resected intra- abdominal tumor
3. Stage B: multiple extra- abdominal sites
4. Stage C: Intra-abdominal tumor with or without facial tumor
5. Stage D: intra-abdominal tumor with sites other than facial

**Treatment**

* Aggressive multi agent chemotherapy
* Pre chemotherapy: fluid preload, allopurinol, dexamethasone and correction of metabolic imbalances
* First line chemotherapy- cyclophosphamide, oncovin (vincristine), methotrexate and cytocine arabinoside.
* Surgical approaches:
* Biopsy for diagnosis
* Debulking- reduction of the tumor volume
* Laminectomy: to relieve spinal cord compression
* Insertion of Omaya reservoir for intraventricular therapy
* Intrathecal chemotherapy for CNS prophylaxis
* Cranial radiation for children who have disease in the CNS
* Hematopoietic stem cell transplant incase of relapse
* Note : radiotherapy is ineffective because of its rapid proliferation and metastasis

**Nursing management**

-Pre -treatment management

* Hydrate the patient
* Give allopurinol
* Explain to the family and patient

-Treatment

Administer chemotherapeutic agents :

1. First line: vincristine, actinomycin, methotrexate iv/IT for CNS prophylaxis
2. Second line: etoposide, cytarabine, rituximab, doxorubicin and fluoxetine

-Prepare patient for surgery:- decompression of the spine, debulking tumor

-Management in ICU for the side effects and tumor lysis syndrome.

* Hyper- hydration- 1.5 – 2 times the normal maintenance fluid requirement
* Allopurinol :- started early and done adequately
* Urate Oxidase ( URICASE ) :- It inhibits formation of uric acid crystalsthat may cause acute renal failure.

-Follow up for 5 years post chemotherapy due to high possibility of relapse.

**Prevention and control**

* Sleeping under mosquito treated nets
* Early diagnosis and prompt treatment of malaria
* Active management of HIV infection to prevent weakening of the immune system
* Prevent contact with Epstein Barr virus through saliva

PATIENT HISTORY

HEALTH PERCEPTION HEALTH MANAGEMENT PATTERN

Patient came in on 7th January 2020 accompanied by his mother presenting with the following symptoms: swollen and distorted jaw bone, enlarged thyroid and tonsils, pain, difficulty in chewing and bleeding gums. The child had started experiencing mild symptoms prior to admission which were gradually increasing in severity and intensity with pain at 7, increased swelling of the jaw and thyroid with partial inability to chew on the affected side. This was accompanied by fever and profuse night sweats. This lead to continuous absentee from school for one month. He took diclofenac orally to relieve the pain, which became persistent despite the drugs. The child has frequently suffered from malaria in the past which lead to his admission in 2018 and 2019. He was managed with artenusate, AL(artemether – lumefantrine) and paracetamol then discharged home safely. He has never had any surgeries before. There is no familial history of chronic conditions and the patient does not suffer from any chronic conditions such as hypertension, sickle cell anaemia,diabetes and HIV/AIDS.. All childhood immunizations have been done effectively and there is no history of alcohol and cigarette smoking in the family. To keep safe and healthy, the mother has maintained frequent dental check-ups for the son. The child is currently on IV tranexamic acid stat dose, and brufen tablets 200 mg which he takes with tolerance. The patient is also under chemotherapeutic care.

*Prenatal history*

The mother planned for the pregnancy and conceived naturally. After one month of conception she went to the clinic and confirmed pregnancy during which she was put on iron and folic acid medications. She was then immunized against tetanus toxoid and given mebendazole and long lasting insecticidal net. She attended all the four antenatal care visits. Moreover, she used over the counter medications during her pregnancy such as diclofenac, ibuprofen, paracetamol and piriton. She never drunk alcohol, smoked cigarrete, marijuana or cocaine. She suffered from malaria during pregnancy which lead to admission at Jaramogi Oginga Odinga Teaching and Referal hospital where she was treated with, tramadol, artenusate and artemether lumefantrine and discharged home safely. The mother does not have any chronic conditions such as diabetes, hypertension, HIV/AIDS and did not suffer any complications during pregnancy such as pregnancy induced hepertension, gestational diabetes mellitus, streptococcal infections,toxoplasma, rubella, cytomegalovirus, herpes infections or any abnormal ultrasound findings.

*Labour and delivery*

The baby was the first born and she never had any children afterwards. The baby was born in hospital, term at 40 weeks gestation through spontaneous vaginal delivery in cephalic presentation and no analgesic and anaesthesia was used. Period of labour was short, delivered and held her baby immediately after delivery. The baby was pink in colour with a weight of 2.8 kg and length of 40cm, cried after birth , was breathing spontaneously with all the primitive reflexes normal. The baby was given hexicode,1% tetracycline, vitamin K and was immunized immediately after delivery.

*Postnatal history*

The mother was able to go home with the baby after delivery and never had any complications within the first week of delivery. The baby was feeding well and did not have any breathing problems. He was circumcised and stayed with her mother within the first 6 months after delivery during which he was exclusively breast fed.

I*mmunization history*

The child has had BCG vaccine as evidenced by a BCG scar.

*Developmental history*

The baby was able to smile responsively at six weeks, sit unsupported at 7 months, walk unsupported and utter words at 12 months and at 24 months was able to say a three word sentence, run and toilet well. At 4 years, he was taken to school at Manyatta primary school and was now in class three. He was able to attain 305 marks , position 7 in class, interacted well with his peers and was an active participant in sports especially football. He rarely had night mares, was not short tempered and did not have the habit of thumb sucking.

*Feeding history*

He was exclusively breast fed for six months. Then liquid and semi-solid foods were introduced such as milk, fortified porridge, soup and water. At two years, solid foods were introduced and the baby was fed on small frequent meals. At two years and 6 months, the baby was able to feed on her own. Adequate amount of food was provided and the baby was able to feed regularly. Such foods included, fruits, vegetables, fish, meat, ugali, rice and potatoes.

NUTRITION- METABOLIC PATTERN

Before illness , the child could eat three meals in a day, breakfast, lunch and supper. Typically breakfast was, fortified porridge and bread ; lunch- rice, chapatti , beans, peas, green grams, biscuits and supper- ugali, fish, chicken, beef, eggs and pork with fruits and vegetables on each meal. 6-8 glasses of water were being taken each day with an addition of soup, juice and milk. After the onset of illness, there was severe decrease in appetite and since chewing was difficult, intake of solid foods and cold drinks was reduced. The child could take two or even three meals in a day but in very small quantities. He regularly took water and warm fluids instead of solid foods which caused a lot discomfort during chewing. Several dental checkups have been done and there are two missing teeth. He had a height of 135cm , weight of 28.1 kg and a BMI of 15.4 indicating positive nutrition maintenance

ELIMINATION PATTERN

Before illness , the child’s bowel elimination pattern was consistent , three times in a day, with soft, adequate amount, fowl smelly green to brown colour of stool. After illness, little amount of hard brown coloured fowl smelling stool once in a day was being eliminated. The child could eliminate approximately 1200 mls of umber urine with a pungent ammonia smell three to five times in a day which has not changed during illness. The patient has never used any assistive devices such as catheters and enemas. He is however constipating. The child has excessive perspiration

ACTIVITY AND EXERCISE PATTERN

Before illness, the patient had a high level of activity spending at least 6-8 hours playing. He was an active participant in sports such as running and playing football at school. He was also able to do activities of daily living such as such as bathing, clothing and eating. The level of activity is drastically reduced during illness such that child cannot participate in leisure sports and does minimal activities of daily living including clothing and eating. He is easily fatigued with pallor, no cyanosis, no cough, no shortness of breath and has no conditions heart disease that can limit activity. The patient is however anaemic.

SLEEP REST PATTERN

Before illness, the child slept for approximately 10hours in a night going to bed at 8:00 pm and waking up at 6:00 am. He felt rested after sleep. He slept in a supine and sometimes fowlers position. He had problems of nocturia and sometimes night mares. He has no difficulty falling asleep. The child’s sleeping pattern has changed during illness due to pain experienced and wakes up from sleep during the night. Moreover, he doesn’t feel rested after sleep as evidenced by reddened swollen eyes, tiredness, easy loss of concentration and irritability. He prefers sleeping in a quiet environment with dim lights which is contrary to the hospital setting.

COGNITIVE PERCEPTUAL PATTERN

The child has a history of pain at 8/10, GCS of 15/15. He grasps ideas and question and he is able to learn promptly. He is a fluent luo speaker though not able to vocalize words promptly due to pain and swollen jaws. He has no history of visual problems, hearing loss , loss of smelling sensation , touch or mobility problems. He has a good memory, judgement and is knowledgeable.

SELF PERCEPTION- SELF CONCEPT PATTERN

The mother is nervous about her child’s condition and prays a lot for her child to relieve the anxiety. The mother is assertive since she is able to make the right decisions for her child. The child has a number of friends both male and female who regularly visit her and does not feel lonely during the hospital stay. He is nervous and anxious about his condition and the outcome.

ROLE RELATIONSHIP PATTERN

The patient is the only child of a single mother aged 30 years. He has a good mutual relationship with his mother; they interact well and feels lonely when separated from his mum. He does not get angry easily and has no difficulty dealing with anger. He has a good relationship with the neighbourhood where he’s able to go play and interact with his peers. He is highly dependent to his mother who is the head of the family and whose income is sufficient for the family.

SEXUALITY REPRODUCTIVE PATTERN

The patient is male aged 9 years. He’s currently not attracted to the opposite gender. There is no history of abnormalities such as itching, dysuria and he has never been sexually abused.

COPING STRESS PATTERN

The patient is stressed about his condition, treatment, pain and separation from her peers which leads to lack of sleep. To get relieved, he sleeps a lot during the day and feels more relieved when his mother is around

VALUE BELIEF PATTERN

It is a family of Christians attending Saturday services at Victory Seventh Day Adventist Church, Kisumu. He is a Christian who strongly participates in Sabbath school and hospitalization has been a major hindrance to his spiritual life. There is no religious restrictions which can hinder his health seeking behaviour.

SCREENING ASSESSMENT

PHYSICAL EXAMINATION

1. VITAL SIGNS

Temperature- 36.7 degrees celcuis

Respirations- 12braeths per minute

Pulse rate – 95 beats per minute

Blood pressure – 100/75

Height- 135 cm

Weight-28.1 KG

Body mass index - 15.4

1. GENERAL OBSERVATION OF THE SKIN

The skin was dark in colour with pallor of the lips, hands and feet .There was a visible large unilateral swelling and lesion of the right jaw. On general palpation, the body temperature was warm with hands and lower extremities slightly colder. The skin texture was smooth, soft ,flaccid , not adequately hydration with no edema.

1. HEAD

On inspection, the head was proportional to the other body parts, symmetrical with no protrusions and depressions. The child was able to hold the head erect and in the midline. No significant head lag was noted. The hair was short, black and well kempt. The scalp was lighter than other parts of the body. No visible scars ,lesions, wounds and head lice were seen. No pulsation of the fontanelles could be seen. On palpation, the hair was smooth in texture. On the scalp, there were no palpable lesions, swelling, tenderness and deformities. Both the anterior and posterior fontanelles were hard ,flat and well fused. The coronal, lambdoidal and sagittal sutures were well united.

1. THE FACE

The face was assymetrical with right sided swelling of the jaw extending to the neck. The swollen portion was lighter than the other portion of the face. Warm on palpation

1. The eyes- the eyes were , medium size and symmetrical. Both the eye lashes and eyebrows were present and black in colour with the eyelashes curving outwards and eyebrows well aligned. The child was able to blink and move the eyes in various directions. The palpebral fissures of both eyes were symmetrical with the upper eyelids covering a small portion of the iris and the lower lid covering the remaining part of the eye. The sclera was white in colour and the conjunctiva was pale red. Both pupils were equally round, dark and reactive to light and accommodation. Visual acquity was 20/20. Reflected light is symmetrically in the centre of both cornea. No tearing or discharge observed from the eye.
2. The ears- both ears were present , symmetrical and proportional to the body. The ear pinna was in line with the outer canthus of the eye. The ear pinna cartilage was continuous, soft and consistent on palpation. In the inner ear, the tympanic membrane was transparent, light pink ,smooth and continuous. Light from the otoscope was reflected off the membrane and vibration was seen on the membrane when air was introduced in to the canal. There was unilateral pain on the right ear and no discharge from both ears.
3. Nose- both were symmetrical, proportional to the body and positioned in the centre of the face. Nares were patent, the nasal mucosa was firm and pink and the nasal septum was continuous and centrally positioned. There was no nasal flaring, no discharge and no swelling and polyps in the nose.
4. Mouth and throat- there was visible swelling of the right cheek bone and the jaw. The lips were pink with lip edges meeting. The oral mucosal membranes were pale pink, moist and smooth. The gums were dark in colour and the tongue was pale. He had a total of 18 teeth with two, incisor and canine missing in the right lower jaw. The remaining teeth were white in colour . Both the hard and soft palate on the roof of the mouth were continuous and slightly arched. The uvula was pink and midline and the tonsils behind the tonsilar pillar.
5. THE NECK.

The neck was midline with unilateral swelling, pain and tenderness of the neck on the right side extending from the jaw. There was a normal tone of the neck muscles. There was rising and falling of the thyroid gland on swallowing. No scars, no jugular venous distension was observed and there was in drawing of muscles in the suprasternal notch. On palpation, the carotid pulse was present, the trachea was midline, there was right sided weakness of the neck muscles, the thyroid glands were palpable and all the lymph nodes except the occipital lymph nodes were non-palpable.

1. UPPER AND LOWER EXTREMITIEs

The upper extremities were present, symmetrical and five digits on each upper extremity. The muscle bulk was proportional to the body.No scars, swellings, masses, tenderness were observed. On palpation , the skin was cooler than the other body parts, the bones were continuous with no deformity, the joints were movable , the fingers were pale and the capillary refill took 10 seconds. The radial pulse was 93 beats per minute and the brachial pulse was 97 beats per minute. The child was able to do both active and passive range of motion indicating flexibility of the joints. The tone of muscles was normal with good muscle strength. There was positive fine motor ability because the child was able to grasp, hold, manipulate and release objects from hands. The lower extremities were present, symmetrical with five tarsal bones on each extremities. The muscle bulk was proportional to the body. No scars, swellings, masses and tenderness were observed. On palpation, the skin was cooler than the other body parts, bones were continuous with no deformity, joints were movable , toe nails were pale with the bigger toenail curved inward, due to injury which was obtained at 5 years old while playing. The capillary refill took 10 seconds. The femoral pulse was 97 beats per minute. The child was able to do both active and passive range of motion indicating flexibility of joints. The tone of muscles was normal with good muscle strength. Gross motor ability of the child was positive because proper coordination of the body in walking, sitting and standing was observed. No involuntary movements were seen.

1. CHEST

On inspection of the chest, there was symmetrical rising and falling of the chest on breathing, the ribs were visible, pulsation of the heart at the left fifth intercostal space was visible, the lateral diameter was greater than the antero-posterior . There was in drawing of muscles at the suprasternal notch. On palpation, the skin was warm and smooth, apical pulse was 99 beats per minute, no masses and no tenderness. Soft symmetrical vibration was heard over the chest wall as the patient said”99” decreasing in intensity downwards to the abdomen, indication of normal tactile fremitus. Percussion sound was dominantly resonance over the lungs at the first ,second and the third intercostal space. Over the left fourth and fifth intercostal space, dullness was heard. Between the last two ribs, dullness was heard over the spleen and the liver. On auscultation of breath sounds, bronchial sounds were heard over the trachea, broncho-vescicular sounds were heard over the bronchial and the vescicular sounds were heard over the lung periphery. S1 andS2 heart sounds were heard . S2 was heard best at the 2nd intercostal space right sternal border while S1 was heard best at the 5th intercostal space left sternal border.

1. ABDOMEN

On inspection, the abdomen was flat, there was rising and falling of the abdomen with inhalation and exhalation, , there was pulsation of the abdominal aorta, visible peristaltic movements, the umbilicus was centrally positioned , no visible masses, scars and swelling were present. The skin was flaccid. On auscultation, there were diminished bowel sounds with 1 bowel sound noted in each quadrant and no bruits noted. Percussion sound was dominantly tympani except over the upper quadrants where dullness was elicited. On general palpation, the temperature was warm; soft and regular edges of the liver were palpated just below the costal margin, skin was turgid, no masses , pain and swelling were present. The edges of the right kidney were easily palpable

1. BACK

The spinal cord was continuous and S- shaped, rising and falling of the back muscles on inhalation and exhalation, no visible scars, masses and swelling on inspection. On palpation, temperature was warm, tactile fremitus appeared as vibrations which are symmetrical and diminish downwards, no masses, no tenderness and no swelling. Percussion, there was flatness over the scapula, resonance below the scapula, dullness over the kidneys and tympany over the abdomen. Normal breath sounds were heard on auscultation

1. GENITALIA

Client was male. The urethral meatus was positioned at the tip of the penis. The scrotal sac was proportionately larger than the penis, darker in colour with excess skin fold. Two testes were visible in the scrotal sac. On palpation of the scrotal sac, both testicles were palpable in the scrotal sac. They were smooth, round, oval shaped, and freely movable. There was no scrotal enlargement, no swelling or masses palpated at the inguinal region.

At the anal opening, the normal anal reflex was present, anal fissures were present, no haemorrhoids, no lesions, no skin tags, no prolapse and no pin worms were observed.

**DIAGNOSTIC TESTS**

1 )PHYSICAL EXAMINATION

Physical examination revealed presence of right sided swelling of the neck and jaw bone. The cervical lymph nodes were swollen.

2)BIOPSY

A trucut biopsy of the right jaw swollen tissue was performed and the tissue was observed. Histology revealed presence of neoplastic lymphocytic cells( sheets of lymphoblasts) and “starry sky” tangible body macrophages. Immunological analysis revealed increased level of surface antigen, increased levels of CD20, reduced CD 5 levels, increased CD10, decreased CD23, increased BCL6 and decreased MUM1( lymphocyte specific transcription factor).

3)LABORATORY INVESTIGATIONS

COMPLETE BLOOD COUNT/ FULL HEMOGRAM

Parameters limit

WBCS

NEU(-) 1.2 1.7-7.7

LYMP(-) 0.33 0.40-4.40

MON (normal)-0.7 0.00-0.80

EO(normal) 0.50 0.00-0.60

BAS(normal)-0.17 0.00-0.20

RBC(-) 3.8 4.5-6.5

Hb (-) 7.3 9.0-15.0

HCT(-) 39% 40-52

Complete blood count revealed reduced levels of neutrophils, lymphocytes, red blood cells, haemoglobin and haematocrit. This indicates presence of anaemia, neutropenia and lymphopenia which indicates diminished bone marrow function.

4)ABDOMINAL ULTRASOUND

Liver and spleen were enlarged, no pelvic and abdominal masses were observed.

5)HIV TESTING AND COUNSELLING

The patient was non reactive

**MEDICAL AND NURSING MANAGEMENT**

***ADMISSION PROCEDURE***

-It refers to the process of receiving and detaining a patient in a health facility for provision of safe environment and therapeutic interventions.

-the child was received in the ward accompanied by her mother with a provisional diagnosis of burkitt lymphoma and offered a seat.

-He was then identified by the accompanying nurse and the validity of the admission documents was checked.

-History was then taken from the patient and the companion.

- Head to toe physical examination was then performed and vital signs were recorded.

-all request forms for routine investigations were availed in the patient’s file.

-the patient was then introduced to the staff

- due treatments were made and the patient was reviewed by the physician.

- a nursing care plan was developed for the patient and the file was kept in the cabinet

- all equipment used were then kept safely in the cabinet.

***POSITION IN BED***

The patient was placed in a semi-fowler’s position with the head of the bed raised at 45 degrees and a pillow. This promoted comfort and effective breathing.

***DRUGS PRESCRIBED***

***Tranexamic acid –*** inhibits fibrinolysis by displacing plasminogen from fibrin thus preventing haemorrhage. Dosage: 10mg/kg IV 6 hourly. The nurse should monitor for anaphylactic reactions which is common with intravenous administration

***Allopurinol-***dosage: IV 350 mg /m2/day for two days before beginning of chemotherapy. The drug decreases production of uric acid without disrupting synthesis of vital purines. The nurse should monitor for Steven Johnsons syndrome which occurs as a reaction to the drug

***Dexamethasone***-: dosage: IV 8mg/day for 7 days. The drug decreases inflammation by suppressing migration of polymorphonuclear leukocytes and reducing capillary permeability.The nurse should monitor the patient for neurological complications such as convulsions, depression and increased intracranial pressure and intervene appropriately.

***Cyclophosphamide-*** dosage: 800mg/m2 IV. The drug interferes with malignant cell growth by cross -linking tumor cell growth. The nurse should monitor the patient for signs of heart failure.

***Oncovin (vincristine):***- Dosage:-1.4mg/m2 IV for 7 days.It is a vinca alkaloid that inhibits DNA and RNA synthesis.The nurse should manage patient for nausea and vomiting by administering antiemetics

***Methotrexate:-***Dosage-10 mg/day P.O. The drug inhibits dihydrofolic acid reductase . the nurse should monitor the patient for erythema

***Etoposide, -second line:-***35mg/m2/day IV. It inhibits DNA replication. The nurse should monitor the patient for signs of peripheral neuropathy eg paralysis and loss of sensation.

***Cytarabine:-***150 mg /m2 IV. The metabolite cytarabine-5-triphosphate inhibits DNA polymerase during the S phase. The nurse should monitor for complications such as vomiting, fever, thrombophlebitis, bleeding, nausea.

***Rituximab-:*** 375 mg/m2 I.V. the drug binds to CD-20 antigen , inducing complement or antibody mediated cytolysis. The nurse should be alert for signs of infusion reactions such as flushing and edema.

***Doxorubicin:-*** Dosage:- 20 mg/m2 IV. It intercalates between DNA base pairs, impairs topoisomerase II function and inhibits replication and transcription. the nurse should monitor for local erythematous streaking along the vein and facial flushing. Incase of extravasation, terminate the injection immediately and apply cold pack.

***Fludarabine:-***Dosage:- 25 mg/m2.IV. the drug inhibits DNA polymerase alpha. The nurse should administer the drug as a continuous infusion and monitor for signs of toxicity such as diaphoresis, gastrointestinal bleeding.

***Chlorambucil:- Dosa***ge – 0.4 mg/kg. it is an alkylating agent that crosslinks DNA and interferes with its replication. The patient should be monitored for signs of anaemia which comes as a complication of the drug.

***Fluids***

* Lactated ringers- IV infusion
* Normal saline – intravenous infusion

***Special therapies***

1)Oxygen- The patient was put on 6litres of oxygen via non-rebreather mask with a positive end expiratory pressure.

***Physical care***

The mother with full support of the nurse was able to do physical care for the child such as bathing, grooming, oral care and appropriate bed making for the baby.

***Dietherapy***

Small frequent meals including foods high in calories- Milk, ugali, chicken, fish.

***Psychosocial care***

-Good nurse patient relationship was established

-The patient adhered to medication after counselling

-The patient’s mother was taught on self-care, diet, chemotherapy medications and adverse drug effects that may occur.

***Community care***

Home visit for continuity of care. It helps reduce hospital stay.

Health education during a home visit enables the patient to focus on important parameters and monitor for any complications that may occur.

**DISHARGE AND REHABILITATION**

Before discharge:-

-Assess need for discharge of the patient and level of preparedness of the patient.

During discharge:-

-provide comfort and explain discharge to the parent

-perform mental and physical examination

-share information on the patient’s condition and follow up

-give instruction about the prescribed medications

-Educate patient on expected side effects and how to manage them.

-document date and time of discharge, discharge drugs, physical and mental state and schedule for followup

Rehabilitation:-

-Regular physiotherapy

-Ambulation

-Adherence to chemotherapy medications

Community reintegration

* Increase awareness about lymphomas, and the predisposing factors such as malaria
* Teach people about preventive measures such as sleeping under mosquito treated nets, malaria prophylaxis during pregnancy

**NURSING CARE PLAN**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Assessment data | Nursing diagnosis | Goal and expected outcome | Nursing interventions | rationale | evaluation |
| -resiratory rate-12  -Laboured breathing  -Use of accessory muscles to breath | Impaired gaseous exchange related to pressure on the trachea by a mediastinal mass as evidenced by laboured breathing | Goal: to promote adequate gaseous exchange by the end of 4 hours  Expected outcome  -the patients respiratory rate will be within normal range of 16-20 breaths per minute  -there will be no laboured breathing  -there will be no use of accessory muscles to breath | -the nurse should put the patient in a semi fowlers position.  - the nurse should assess and monitor respiratory rate, depth and rhythm.  - the nurse should teach and help the patient in deep breathing and coughing exercises.  -the nurse should promote bed rest in a calm and quiet environment.  -the nurse should administer supplemental oxygen 6L via face mask with a positive end expiratory pressure.  -the nurse should observe the patient for neck vein distension , peri-orbital edema and stridor. | -semi fowlers position promotes comfort and reduces pressure on the trachea and maximizes lung expansion  -assessment helps in early detection of symptoms dypnea, tachypnea for early interventions  -deep breathing exercises maximizes expansion of the lungs and small airways.  -bed rest in a calm and quiet environment promotes relaxation, conserving energy and reducing oxygen demand  -oxygen administration helps in reducing hypoxemia and maximizes circulatory uptake.  -burkitt lymphoma clients are prone to superior venacava syndrome which results in tracheal deviation and airway obstruction. | Goal partially met as evidenced by:  -reduced labour of breathing.  -normal respiratory rate  -use of diaphragmatic muscles to breath. |
| -reduced intake of solid foods and cold drinks  -bleeding gums, loose teeth and missing teeth.  -painful mandible  -gastric irritation due to chemotherapeutic drugs.  -nausea and vomiting | Imbalanced nutrition less than the body requirements related to mandibular pain as evidenced by patient’s report of reduced intake | Goal: to promote balanced nutrition as evidenced by(expected outcome)  -the patient will be able to increase intake of solid foods and cold drinks  -the patient’s bleeding of gums will be reduced.  -the patient will verbalize reduced mandibular pain. | -the nurse should provide oral care before and after meals  -the nurse should encourage intake of less spiced foods and prevent environmental noxious stimuli  -the nurse should feed the client on small frequent meals which are soft in texture and moderate temperature.  -the nurse should weigh the client daily.  -the nurse should encourage the client to take foods rich in calories  -the nurse should administer analgesic drugs such as paracetamol before and after meals. | -oral care prevents occurrence of stomatitis which limits intake.  -spiced foods and environmental stimuli lead to emesis  -small, soft frequent meals with moderate temperature are better tolerated by the client  -daily weighing for comparison with baseline data to evaluate effectiveness of nutritional therapy  -foods rich in calories should be encouraged because the metabolic demands of tissues are increased.  -paracetamol helps relieve pain by inhibiting prostaglandins release. | -goal partially met as evidenced by -reduced mandibular pain before and after meals  - reduced gastric irritation  -reduced nausea and vomiting  -reduced bleeding of gums. |
| -bleeding gums  -flaccid skin  -reduced intake of cold and hot fluids  -thrombocytopenia  -dry mouth.  -excessive sweating.  -Nausea and vomiting. | Fluid volume deficit related to reduced levels of thrombocytes in the body as evidenced by bleeding gums | GOAL: To promote fluid balance by the end of 72 hours.  As evidenced by:  -the patient will be able to verbalize reduced bleeding from gums  -the patients skin will be turgid on examination  -Laboratory examination will indicate normal levels of thrombocytes  -the patient’s intake of fluids will be increased.  -there will be no signs of dehydration such as dry mouth  -the patient will verbalize reduced sweating. | -The nurse should encourage and help the patient use soft- bristled toothbrush  -The nurse should strictly monitor intake and output including insensible fluid loss.  -the nurse should administer parenteral fluids such as normal saline and lactated ringers.  -The nurse should weigh the patient daily  -the nurse should administer antiemetic drugs.  -the patient should be monitored closely for signs of dehydration such as dry mouth, wrinkled skin, sunken eyes | -soft bristled toothbrush reduces injury to the gums thus prevents bleeding  -strict monitoring of intake and output helps to establish fluid needs and also compare with baseline data  -isotonic fluids act as volume expanders thus improve fluid quantities in the body.  - Fluids contribute to body weight thus weighing evaluates the quantites of fluids in the body  -anti emetic drugs prevent nausea and vomiting thus preventing fluid loss.  -early detection of dehydration promotes early initiation of fluid replacement. | Goal partially met as evidenced by:  -reduced bleeding of gums  -normal levels of thrombocytes |
| -diminished bone marrow function  -bleeding through gums  -venipuncture bleeding  -reduced haemoglobin levels  -low red blood blood cell count  -pallor of mucous membranes and exteremities.  -cappilary refill of 10seconds | Impaired tissue related to diminished bone marrow function as evidenced by pallor | Gaol: to promote perfusion by the end of 24 hours As evidenced by  -the patient will have pink extremities and mucous membranes  -the patient’s capillary refill time will be 2-3 seconds  -the patient’s laboratory CBC will indicate normal levels haemoglobin and red blood cell count | -the nurse should monitor vital signs to identify rapid weak pulse and decreased blood pressure  -the nurse should use soft bristled tooth brush when doing oral care  -the nurse should apply pressure after Intramuscular injections  -the nurse should administer thrombolytics such as fresh frozen plasma  -the nurse should administer tranexamic acid  -the nurse should prepare the patient for bone marrow transplantation. | -monitoring of vital signs helps in early detection of haematological complications.  -soft bristled tooth brush helps prevent traumatic bleeding of gums during oral care.  -applying pressure helps prevent bleeding from the injection site  -thrombolytic improve coagulation thus reducing bleeding.  -tranexamic acid controls bleeding  -bone marrow transplantation is done to improve production of blood cells | Goal is partially met as evidenced by:  -reduced venipuncture bleeding  -normal haemoglobin levels  -reduced pallor of mucus membranes  Capillary refill of 5 seconds |
| -Low white blood cell count  -limited movement | Risk for infections related to reduced body defence mechanism | Goal: to prevent occurrence of infections by the end of 48 hours as evidenced by :  -the patients complete blood count will show normal white blood cell count | -the nurse should ensure proper hand washing for all health care personnel and visitors.  -the nurse should turn the patient two hourly and help the patient in doing deep breathing and coughing exercises  -the nurse should ensure adequate routine immunization including pneumococcal and meningococcal vaccines  -the nurse should administer prophylactic antibiotics eg IV ceftriaxone 1gram  -the nurse should assess and report any signs of infection such as fever,erythema, swelling  -the nurse should monitor white blood cell count | -proper hand washing prevents cross contamination and reduces risk for infection.  -frequent turning and deep breathing exercises prevents stasis of respiratory secretions thus reducing risk of atelectasis and pneumonia  -immunization decreases risk for infection exposure  -ceftriaxone inhibits peptidoglycan synthesis thus preventing bacterial infections  -early assessment and report for early diagnosis and prompt treatment of infections  -reduced white cell count indicates increased risk for infection thus regular monitoring should be done to compare with baseline data | -goal is ongoing. |

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