HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE,

BEREKUM

A PATIENT/FAMILY CARE STUDY ON HAEMOLYTIC ANAEMIA SECONDARY TO SEVERE MALARIA

BY

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A PATIENT/FAMILY CARE STUDY SUBMITTED TO NURSING AND MIDWIFERY COUNCIL OF GHANA IN PARTIAL FULFILMENT TOWARDS THE AWARD OF LICENSE TO PRACTICE AS A PROFESSIONAL REGISTERED GENERAL NURSE

AUGUST, 2022

PREFACE

Nursing care has broadened from care of the sick to care of the people (both in sickness and health), and also extend to the patient's family and community at large in all aspects.

During the 19th and 20th centuries however, nursing developed as there were many wars, arousal of social consciousness and increased educational opportunities offered to women and the enormous role played by Florence Nightingale that cannot be over emphasized. The training of nurses in diploma program, licensing of nurses, specialization of hospitals and diagnosis, development of baccalaureate and advance degree programs and scientific and technological development as well as social changes marked this period. More than ever, today's nurses need to think critically, creatively, and compassionately to reach out to all. The critical thinking appreciation is achieved through the use of the nursing process. The nursing process is a series of organized steps designed for nurses to provide excellent care; it is also a scientific method used by nurses to ensure the quality of patient care. This approach can be broken down into five separate steps namely; assessment, diagnosis, planning, implementation and evaluation. Patient/Family care study (which uses the nursing process approach) is a detailed account of nursing care rendered to a patient/ family within a specific period of time. The interaction between the patient /family, the community and the health team is involved in the planning and implementation of the care given to the patient to meet his or her physiological, spiritual, psychological and socio-economic needs.

The patient/family care study helps student nurses to identify patient and family problems so as to be able to formulate appropriate interventions. This enables the student nurse to look into the disease condition to be able to put to use the theoretical knowledge and practical skills acquired during training to provide holistic nursing care including health education to the patient and family. Finally, the patient and family care study is part of the final assessment of the student nurse by the Nursing and Midwifery Council of Ghana, for the award of license to practice as a professional registered general nurse. To ensure confidentiality, patient's initials have been used instead of her name.

ACKNOWLEDGEMENT

I wish to express my heartfelt gratitude to the Almighty God for his grace, mercy, protection, favour, good health, wisdom and understanding given to me to carry out this care study successfully.

My sincere thanks go to my patient, M.A and her family especially her grandmother Madam P.A.K for their co-operation and for providing me with all the requisite information during my interactions with them which contributed to the success of this care study. And their maximum corporation and the necessary information given me and made this piece of writing a success.

Particular thank goes to the entire teaching and non-teaching staff of Nursing and Midwifery Training College, Berekum, especially my supervisor Mr Eric Obeng for their immense support and guidance given to me which has enabled me to make this care study a reality.

Again, I am very grateful to all the staff of Paediatrics Ward of St. Theresa Hospital, Nkoranza for their attention and support especially to the ward in-charge.

I would like to express my appreciation to all the authors from whose books I used as references for my study.

Finally, I would again want to express my immense appreciation to my parents for their support, financially, psychologically and physically not forgetting my lovely siblings and my lovely friends for their prayers, support and encouragement.

May God bless them all.

INTRODUCTION

Patient and family care study involves the interaction between the client and the health team. In this, a patient is selected in the ward with a specific disease. The client is nursed from day of admission to the day of discharge and follow ups are made to help maintain good health and ensure continuity of care.

The study was conducted on Miss M.A, a two years old girl. She was admitted on 31st October, 2021, with a history of convulsion, loss of appetite, fever, cough, vomiting and insomnia which started three days ago. After thorough examination by the doctor, she was diagnosed as having severe malaria which complicated to Haemolytic Anaemia. The patient's condition improved and was discharged on 4th of November, 2021.

My interaction between M.A and grandmother started on 31st October, 2021. When she was admitted to Paediatric unit and discharged on 4th of November, 2021. I chose this particular patient because I was interested in knowing how to handle and to know the cause, species of malaria, signs and symptoms, prevention and management, complications as well as its treatment and able to put into practice actual and holistic nursing care, as it has been learnt theoretically of this condition.

My client was conscious and alert, a total of seven (7) problems were identified during admission and they are; risk for fluid and electrolyte imbalance, high body temperature, nutritional deficit, knowledge deficit (grandmother), sleeplessness, general body weakness and cough.

The following laboratory investigations were carried out as follows;

Blood for malaria parasite.

Blood for full blood count such as, haemoglobin level, white blood cells count, red blood cells count.

Blood for sickling test.

Blood for G6PD.

Grouping and cross matching

Blood for typhoid test

The following treatment regimens were given to Miss M.A to enhance speedy recovery

IV Artesunate 33mg 0, 12, 24 hours.

IV Metronidazole 83mg tds x 48 hours.

Syrup Viscus D 5mls tid x 7days.

Syrup multivitamin 5mls x 7days

Tab Zinc 20mg daily x 10.

Rectal diazepam 2.5mg

Syrup Paracetamol 5mls tds x 5 days.

IV laxis 11mg as premedication.

IVF ringers lactate 500mls.

4.3L Dextrose in 1/5 normal saline 250mls

Hemotransfusion of 400mls whole blood.

Syrup A/L 20/120mg bd x 3

IV hydrocortisone 25mg

Lexsporin cream twice daily

A total of three home visits were made. The first home visit was on the 3rd November, 2021 when patient was on admission with the purpose of finding out about the environment in which she lives to help identify possible health problems in the area and establish a link between the problems and my patient's condition and then remedy the situation through health education.

Second home visit on the 18th November, 2021 with the purpose of finding out how she was coping with the treatment regimen and remind her mother of her review date.

The third home visit was on the 10th December, 2021 with the purpose of termination of care and how she is adhering to the treatment regimen.

The patient/family care study is arranged under six headings which are;

Assessment of Patient/Family.

Analysis of data.

Planning of Patient/Family care.

Implementation of Patient/Family care plan.

Evaluation of care rendered to Patient/Family.

Summary and conclusion.

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CHAPTER ONE

ASSESSMENT OF PATIENT/FAMILY

Introduction

To provide holistic care to the patient and family, the nursing process must be employed. Assessment is the first step/phase of the nursing process and it is an integral part of the care study. Assessment involves the gathering of information about the health status of the patient/client, analysis and synthesis of the data and the making of clinical nursing judgment (Weller, 2014).

The purpose of assessment is to establish a data base concerning a client's physical, psychosocial and emotional health to identify health promoting behaviour as well as actual and/or potential problems. The goal of assessment is to collect and analyse data to be used in formulating nursing diagnoses, identifying outcome, planning care, and developing nursing interventions. It commences from the day of admission until the care is terminated and this phase comprises concrete of data gathered systematically and tactfully. The data collected would help the nurse to decide with other health professionals, patient and family on the suitable method to employ and attain optimal health. Data gathered helps to evaluate the causes or predisposing factors of the client's condition.

1.1 Patient's particulars

Patient's particulars are defined as written information and detailed about the patient (Turnbull et al, 2016). It is also known as biographical data, Patient particulars are concerned with detailed information of the patient that has been recorded which include; patient's name (initials), date of birth, age, home town, where patient lives, patient's address, next- of- kin, occupation, religion and marital status.

M. A. is the patient for the study; she was born on 26th October, 2019, at Fakwasi, a community near Atebubu in the Bono East Region. My patient is 2 years old. She is born to the late Madam P. A. K. and Mr. E. O. She is the first child among the two children born to her parents. She comes from Fakwasi and stays at Fakwasi in house number BA-01146. She is chocalate in complexion with a weight of 12kg and height of 0.68m with a body mass index (BMI) of 16.8kg/m^2. Because of her age, she does not

have a complete dental formula. She is a Christian and attends Presbyterian Church at Fakwasi. Madam J. S, her grandmother who resides at Fakwasi is her next of kin. She speaks her mother tongue (Bono). M. A. has not started schooling yet, because Fakwasi is a small community which has no preschooling structures for children of her age. Her folder number is 007801-21.

1.2 Family's Medical/Surgical History

Medical and Surgical history is a set of events pertaining to diseases or surgical procedures and complications if any that a particular person has had (Farlex, 2017).

My conversation with Miss J. S and her family revealed that, there is no familial or genetic disease or disorder such as hypertension, diabetes, mental illness and epilepsy in their family. Currently, M.A.'s sibling is not sick or injured, they are all in good health. None of the family members has undergone surgery before. The source of medical treatment for M.A.'s family is orthodox medication, that is over the counter drugs especially Paracetamol to treat minor sickness like headache. They sometimes use herbs to treat some skin disorders. The family does not have any known allergies.

1.3 Family's Socio-Economic History

Socio-economic history is the collection of information about the influence of a patient's finances and educational advantages on social status. The term socio-economic is often used in explanation to class. It comprises of both the social and economic status of the patient (Farlex, 2017).

As a child of 2 years old, the parents provide her with all that she needs such as food, cloth, shelter. Her father is a Maison and according to the grandmother she does farming to earn income. Upon discussion with her grandmother, the average monthly income is around eight hundred Ghana cedis (GHC800.00), averaging ninety-six thousand Ghana cedis (GHC96,000.00) annually. A very cordial relationship exists in their family as they give one another emotional support and other necessary things needed. According to the grandmother, all members of the family are Presbyterians and are much concerned with their religious responsibilities.

The family has registered with the National Health Insurance Scheme (NHIS), this enables them to get free medical treatment when they fall sick.

1.4 Patient's Developmental History

Development refers to the biological, psychological and emotional changes that occur in human beings between birth and the end of adolescence as the individual progress from dependence to increasing autonomy (Weller, 2014).

Growth is the physical increase in size and appearance of the body caused by increasing number and size of cells (Weller, 2014).

M. A. was born at Dromankese Health Center, Dromakese, on 26th of October, 2019 by a qualified midwife. She was born at term through spontaneous vaginal delivery (SVD). Her mother was about 26 years old when she gave birth to her. According to the grandmother, M. A. started sitting up when she was 4 months old, started crawling on the 7th month, she started standing on the 10th month and started speaking when she was 1 year 6 months. She has been immunized against all the childhood diseases that are BCG, Polio, Diphtheria, Pertusis, Tetanus, Hepatitis B, Haemophilus Influenza Type 3, Measles and Yellow Fever as I observed the BCG mark on patient's right upper arm.

She is at the second stage of development among the eight stages according to Erik Erikson's psychosocial theory of development. She is at the stage of Autonomy versus Shame and Doubt which is focused on children developing a greater sense of personal control. M. A. has developed a sense of autonomy for herself since she is able to make choices and have personal control over physical skills and a sense of independence. She is an interesting child because she does not cry often and goes to anyone who carries her.

1.5 Patient's Lifestyle/Hobbies

Lifestyle/Hobby is a style of living that reflects the attitudes and values of a person or group (Wang & Peura, 2015). According to her grandmother, she normally sleeps as early as 8:00 pm and wakes up

around 7:00 am. She takes her bath twice daily (morning and evening) with cold water when the weather is warm and at times with warm water when the weather is cold. She is assisted by the grandmother every morning to clean her teeth before taking her breakfast mostly porriadge and sometimes milo tea. M.A prefers rice and stew for lunch and fufu with light soup during supper. She normally passes out stool at least twice daily and also empties her bladder anytime she feels the urge to.

The grandmother sometimes takes her to farm when no one is around to take care of her. She has interest in playing with toys and other children of her age. M. A. does not often cry and can be described as friendly.

1.6 Patient's Past Medical/Surgical History

Past medical history according to Farlex (2017) is a comprehensive statement of facts pertaining to past health gathered, ideally from the patient by directed questioning.

M. A. had no childhood illness, like measles, whooping cough and other diseases as she grew from childhood. She has no known allergies to drugs, animals, insects or any food. She has never had any accident or injuries before. She has never been hospitalized before.

1.7 Patient's Present Medical/Surgical History

Present medical history according to the medical dictionary (2015) is a chronologic description of the development of the patient's present illness, from the first sign and/or symptom or from the previous encounter to the present which includes the location, quality, severity, duration, timing, modifying factors and associated signs and symptoms.

Patient was brought to St. Theresa's hospital on 31st October, 2021 by the grandmother as a referral case from Dromankese Health Center with complaints of convulsion, loss of appetite, fever, cough, vomiting and insomnia which started three days ago. She was sent to Dromankese Health Center for treatment but child's condition became worse and she was referred to St. Theresa's hospital, Nkoranza for further treatment and management. M.A. was seen at the Out-Patient Department {OPD} by Physician

Assisstance (Daniel) with history of convulsion, loss of appetite, fever, cough, vomiting (4 times) and inability to sleep. M.A was admitted to the Paediatric Ward with diagnosis of Haemolytic Anaemia secondary to Severe Malaria by PA Daniel.

1.8 Admission of the Patient

Admission of patient involves the keeping of patient in the ward and rendering the appropriate care to him or her until he or she is fully recovered (Weller, 2014).

On 31st October, 2021 at 1: 00 pm, M A, with the grandmother accompanied by a nurse walked into the Peadiatric Ward for admission. She was admitted by PA Daniel with the diagnosis of Haemolytic Anaemia secondary to Severe Malaria. I introduced myself, and the other staffs on duty to her grandmother. The nurse handed over her folder to me. I confirmed the particulars in the folder with those her relative told me. She was placed in a well prepared simple unoccupied bed. I assisted them to arrange her personal items in their locker by her bedside. I orientated her grandmother to the ward and its annexes. I also introduced the other patients in the same room to her family. Madam J. S. complained that M.A. has been vomiting, cough, loss of appetite, inability to sleep, fever. On examination, she looked weak, pale, warm when touched and very sick.

Vital signs checked on admission were;

Temperature	$38.3^{O}C$
Pulse	146bpm
Respiration	26cpm
SPO_2	100%
RBS	8.4mmmol/L

Weight was 12kg.

I then entered the information into the Admission and Discharge book and the daily ward state

The following treatment plans were written in her folder:

1. Intravenous Artesunate 33mg 0, 12, 24 hours.
2. Intravenous Metronidazole 83mg tds x 48 hours.
3. Syrup Viscus D 5mls tid x 7days.
4. Syrup multivitamin 5mls x 7days
5. Tab Zinc 20mg daily x 10.
6. Rectal diazepam 2.5mg
7. Syrup Paracetamol 5mls tds x 5 days.
8. Intravenous laxis 11mg as premedication.
9. Intravenous fluid Ringers lactate 500mls.
10. 4.3L Dextrose in 1/5 normal saline 250mls
11. Hemotransfusion of 400mls and 220mls whole blood.
12. Syrup A/L 20/120mg bd x 3
13. IV hydrocortisone 25mg
14. Lexsporin cream twice daily

Laboratory investigations ordered by the doctor included:

1. Blood for malaria parasite.
2. Blood for full blood count such as, haemoglobin level, white blood cells count, red blood cells count.
3. Blood for sickling test.
4. Blood for G6PD.
5. Grouping and cross matching

6. Blood for typhoid test

An intravenous cannula was set for patient and blood sample was taken to the laboratory for the laboratory investigations. Her due medications were administered accordingly. Patient was made comfortable in bed and Madam J. S. was reassured that she was in good hands and both doctors and nurses would do their best to ensure the recovery of M.A. I introduced myself as a final year student nurse of the Holy Family Nursing and Midwifery Training College, Berekum. I made them aware of my desire to take M.A and the family for a care study, to enable me render to them individualized comprehensive nursing care until she was discharged home and even follow her after discharge. I made it known to them that it was a requirement by the Nursing and Midwifery Council of Ghana in partial fulfillment towards the award of license in Registered General Nursing Certificate. They agreed to my request and promised to cooperate in the care of M.A. A care plan was quickly drawn to care for patient and family. A nursing care plan was drawn based on patients' problems in order to help give individualized care to them and effectively manage her as to achieve a speedy recovery. Other interventions were added to help achieve the set goals.

The actual care rendered is discussed in chapter four.

1.9 Patient's Concept of Illness

Patient's grandmother did not understand the specific causes of her child's illnesses. She was however quick to recognize the signs and symptoms of ill health such as fever, vomiting and loss of appetite. She was looking forward to seeing her granddaughter recover speedily. She believed that her grandchild's illness could be treated by modern medicines and was much specific about the need for orthodox medicine.

1.10A Literature Review on the Disease Condition (Severe Malaria)

Definition:

Malaria is an acute disease of the blood caused by a parasite called plasmodium. The disease presents fever, chills and profuse sweating (Park, 2017).

According to Yiadom, (2016), malaria is a mosquito borne infectious febrile diseases caused by parasite of the genus plasmodium and transmitted by bite of an infective female anopheles mosquito.

Incidence:

Malaria is one of the most widely prevalent diseases in the world. It is a constant threat and kills about billion humans in the world.

In Ghana, it is the most common disease and accounts for about 40-42% of all out-patient attendants. It also accounts for about 7-9% of all certified death and ranks fifth among the commonest cause of death in children below four years.

It is critical in children under age of five (5) years and pregnant women.

Etiology

According to Yiadom (2016), the aetiology of malaria is explained as the following;

- Four species of malaria parasites-grouped under genus plasmodium, each causing a different type of malaria; plasmodium falciparum, plasmodium vivax, plasmodium malariae, plasmodium ovale.
- The parasite has a complicated life cycle. Not all patients demonstrate classical cycles of fever and chills.
- The plasmodium falciparum causes the most serious type of malaria because of the development of high parasite densities in blood; infected red blood cells (RBC_S) tend to agglutinate and form micro emboli.
- The commonest parasite responsible for malaria in Ghana is plasmodium falciparum.

Predisposing Factors That May Cause Malaria Are:

- Poor refuse disposal.

- Bushy environment which can serve as a breeding place for mosquitoes.
- Empty tins lying around can collect water and breed mosquitoes.

Vector breeding

- Mosquitoes breed in stagnant waters, their maternity home.
- The malaria mosquitoes' anopheles gambiae breeds in temporal waters which collects in ponds, pot holes, dugout pits, hoof prints, puddles, rice fields, tidal swamps.
- The water must be shallow, sunlit and devoid of shade.
- Breeding therefore becomes more pronounced after the rains.

Transmission

- The infectious stage of the parasite, the sporozoite is transmitted to the host by bite of the infective female anopheles mosquito.
- Use of contaminated needles and sharps.
- From mother to fetus across the placenta.
- Transfusion with blood containing the plasmodium parasite (Vinod & Bagga, 2017).

Anopheles funestus the other important malaria vector in Ghana breeds in semi-permanent waters such as stagnant waters along streams, lakes, rivers etc. they breed all year round (Park, 2017).

Incubation Period

It is the time from infection to the appearance of the symptoms. It last for about 10-15 days and is characterized by typical fever stage (Park, 2017).

Types of Plasmodium Parasite

There are five (5) main species of plasmodium parasites.

1. Plasmodium falciparum
2. Plasmodium ovale
3. Plasmodium vivax

4. Plasmodium malariae

5. Plasmodium knowlensi

According to Center for Disease Control and Prevention (CDC), 2016, another species is Plasmodium knowlensi which is very rare and ound in South East Asia and h1as little contribution to human malaria.

Plasmodium vivax occurs in the Middle East, India and Central America, while the other 3 species are found mainly in Africa. Of the five (5) species, plasmodium falciparium causes the most serious cases of illness and the majority of deaths. Malaria Parasites are carried from person to person by mosquitoes of the genus Anopheles. When a female anopheles mosquito pierces the skin to suck blood, it may pick up the parasite from an infected person or conversely, it may pass on the parasite to someone who is uninfected (Marshall, 2018).

Pathophysiology of Malaria

Pathophysiology (Life Cycle of the Malaria Parasite)

The pathophysiology of malaria has two aspects;

- Sexual development in mosquito
- Asexual development in man

According to the Center for Disease Control and Prevention (CDC), 2016, the lifecycle is as below.

Life cycle in Mosquito (**Sexual Reproduction**)**;** Female anopheles mosquito ingests immature male and female gametocyte when it takes a blood meal from an infected person. Gametocyte mature quickly in the gut and mate producing zygote. The zygotes mature and become motile elongated called ookinettes. Ookinettes penetrate the wall of the gut of the mosquito. Ookinettes are encysted called oocytes. Oocytes undergo asexual reproduction and rapture releasing sporozoites. Sporozoites travel to

the salivary gland of the mosquito. When mosquito bites a man, it injects the sporozoites into the blood stream.

Life Cycle in Man (**Asexual Reproduction**). Consist of two stages. These are pre-erythrocytic stage or life cycle in the liver (hepatic stage) and erythrocytic stage or life cycle in the red blood cell.

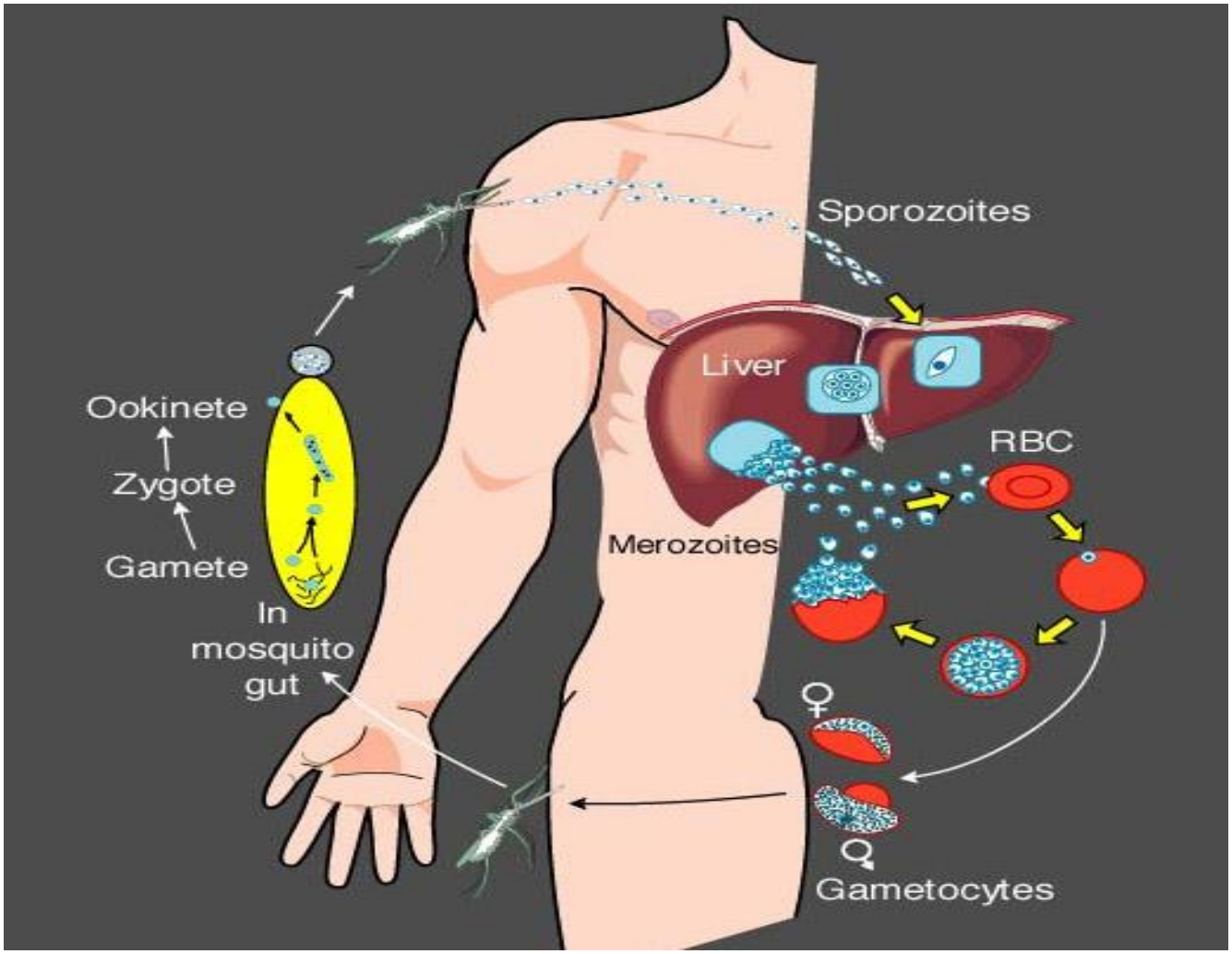
Life Cycle in the Liver or Pre-Erythrocytic Stage; when an infected female anopheles mosquito bites a man, it takes a blood meal, it injects sporozoites in to the blood stream. Sporozoites travel into the blood stream for a while before entering the liver [pre-hepatic stage]. The hepatic stage begins when sporozoite enters the liver parenchyma cells. Sporozoites infect many liver parenchyma cells and develop to schizonts. Schizonts undergo asexual reproduction and rapture releasing many merozoites into the blood stream. The hepatic stage end when merozoites are released.

Life Cycle in the Red Blood Cell or Erythrocytic Stage

This is the second phase of the parasite life cycle in man also called post –hepatic stage. It refers to the stage when the malaria parasite resides on the red blood cells. It begins when the merozoites are release during the hepatic stage and enters the red blood cell. Merozoites ingest haemoglobin and become trophozoites. Within the red blood cell, trophozoit form schizont. Schizont undergoes asexual division and rapture tens of thousands of merozoites. As the schizont rapture to release the merozoites, hemolysis of the red blood cells occurs. This release malaria pigments (digested haemoglobin) and toxins in to the blood. The toxins result in fever, bitterness in the mouth and other clinical features seen in malaria. The merozoites ingest hemoglobin again forming trophozoites which form schizoites again and rapture tens of merozoites and the cycle continue, some merozoite rather develop into male and female gametocyte. The gametocyte is what the mosquito is infected with upon taking blood meal from an infected person.

Diagram of Life Cycle Malaria Parasite

The diagram below shows the life cycle of Malaria Parasite



Types of Malaria

Malaria occurs in four characterized types, each caused by its own distinct species of the plasmodium.

1. **Tertian Malaria**: This is characterized by paroxysms of chills and fever every 48 hours and caused by plasmodium vivax.

2. **Quartian Malaria**: Is characterized by paroxysms of chills and fever every 72 hours and is common. It is caused by plasmodium malariae.

3. Malignant Malaria: Here there are irregular paroxysms of chills; there is diarrhea, vomiting and delirium. Patient may become comatose and die. This is the most severe form of malaria and is common in Tropical Africa, example Ghana. It's caused by plasmodium falciparum.

4. Benign Tertian Malaria: This is usually mild and onset is preceded with chills and fever which is intermittent in nature. It is caused by plasmodium ovale.

Malaria Classification

According to Park, (2017), depending on the patient's immunity level, species of parasite and the presence of any other disease, such as malnutrition and anemia, it can be classified as;

- **Uncomplicated malaria.**
- **Complicated/severe malaria.**

Uncomplicated Malaria

Uncomplicated Malaria is the presence of fever or a recent history of fever (axillary temperature >37.5°C or rectal temperature >38.5°C), in the absence of any signs of severe disease. The diagnosis is confirmed by detecting the malaria parasite in the blood using laboratory tests (Park, 2017).

Treatment failure may occur when a patient with uncomplicated malaria, who have taken the correct dosage and followed the correct regimen of the nationally recommended antimalarial treatment, still has parasite on a blood smear within 14 days of the start of treatment (Park, 2017).

Failure to improve on treatment may be due to a variety of reasons.

These include:

1. Vomiting the medication
2. Poor quality of drug
3. Symptoms due to a cause other than malaria
4. Inadequate treatment (dose/compliance)

5. Resistant malaria parasite (Park, 2017).

Severe/Complicated Malaria

Delay in diagnosis and inappropriate treatment of uncomplicated malaria, especially in infants and children can lead to the rapid development of severe malaria (Park, 2017).

According to Yiadom, (2016), malaria is an acute and chronic infectious disease caused by protozoa plasmodia. Malaria plus any life threatening complication gives rises rise to severe malaria.

Severe Malaria: According to WHO definition, Malaria is considered as severe if a patient has any or a combination of the following:

1. Altered consciousness (change of behaviour, confusion, delirium, coma persisting for over 30min after convulsion).

2. Repeated generalized convulsions (fits) – 2 or more in 24 hours.

3. Inability to take oral fluids/feeds.

4. Repeated profuse vomiting.

5. Extreme pallor – severe anaemia (haematocrit <15%, Hb <5g/dl).

6. Signs of hypoglycaemia (sweating, pupil dilation, abnormal breathing, blood sugar < 2.22mmol/L, coldness).

7. Signs of renal failure (passing very little urine).

8. Signs of haemoglobinuria (dark urine).

9. Circulatory collapse or shock (cold limbs, weak rapid pulse).

10. Difficulty in breathing or pulmonary oedema.

11. Spontaneous unexplained heavy bleeding. (Disseminated intravascular coagulopathy).

12. Marked jaundice (yellow coloration of the eyes).

13. Prostration, i.e. generalized weakness so that the patient cannot walk or sit without assistance.

14. Hyperpyrexia (axillary temperature >39.5 0C).

15. Hyper-parasitaemia (> ++)

People at Risk of Severe Malaria

According to Park, (2017) the following people are at high risk of having severe malaria

1. Travellers from areas with little or no malaria
2. Previous residents of a malaria-endemic area (such as Ghana) who pass more than 6 months in a non-endemic area (such as the US or UK), then return to Ghana
3. Children below five years
4. Pregnant women, especially primigravidae (first pregnancies)
5. Patients with sickle cell anaemia
6. Patients with HIV infection

Clinical Features of Malaria

According to Yiadom, (2016), malaria normally presents the following signs and symptoms;

1. Recurrent high fever
2. Chills
3. Severe rigor
4. Headache
5. Vomiting
6. General malaise
7. Loss of appetite (Anorexia)

8. Abdominal pain (especially in children)
9. Pallor
10. Splenomegaly
11. Abdominal distension
12. Constipation
13. Hypoglycaemia and unconsciousness may be present
14. Convulsion

Diagnosis of Malaria

According to Parks, (2017), the diagnostic investigations include;

1. Clinical manifestation
2. Blood film for malaria parasite (MPs)
3. White blood cells (WBC) counts to detect the presence of malaria parasite
4. Hemoglobin estimation

Management of malaria

According to Mensah, (2012), malaria is best treated based on the following drug regimen depending on the severity of the condition.

Clients suffering from malaria are best managed on the following;

1. IV Fluids such as normal saline, ringers lactate are useful.
2. Antimalarial such as Arthemeter, Camoquine, Fansider, Quinine and Artesunate Amodiquine are the drug of choice depending on the severity of the condition.
3. Analgesics / Antipyratics such as Paracetamol, Ibuprofen, Diclofenac are administered

Specific Medical Treatment

The goal of treatment is to prevent further complication and destruction of the blood by trophozoites and schizoids of plasmodium that cause the clinical manifestations.

Drugs normally prescribed are;

Antimalaria Drugs

1. Artesunate-Amodiaquine is currently the drug combination for the treatment of uncomplicated malaria in Ghana.

The recommended dosage regime for Artesunate-Amodiaquine combination is as follows;

Treatment Regimen for Artesunate- Amodiaquine

WEIGHT (KG)	**(YEARS)**	**NUMBER OF ARTESUNATE TABLETS**			**NUMBER OF AMODIAQUINE TABLETS**		
		DAY 1	DAY 2	DAY 3	DAY 1	DAY 2	DAY 3
5 – 10	Infants	25mg	25mg	25mg	75mg	75mg	75mg
11 – 24	1 – 6	50mg	50mg	50mg	150mg	150mg	150mg
24 – 50	17 – 13	100mg	100mg	100mg	300mg	300mg	300mg
50 +	14 +	200mg	200mg	200mg	600mg	600mg	600mg

2. **Quinine:**

Adult: Initial dose of 600mg and continual dose of 300mg every hour for 7 days

Or 3 tablets of Fansider in Quinine resistance

Or 250mg of tetracycline 6 hourly for 7 days.

Children: Initial dose of 10mg/kg of quinine sulphate every 8 hours for 7 days or fansider, a single dose of $^1/_2\ tablet$ up to 4 years, 1 tablet 5 – 6 years.

$^1/_2\ tablet$ 7 – 9 years and 2 tablets 10 –14 years.

Artemether-Lumefantrine;

A fixed combination tablet of 20mg artemether, and 120mg of Lumefantrine.

Dosage depends on the age and weight of the patient. The dosage is given twice daily for three days.

The table below shows how the dosage is given.

Treatment Regimen for Artemether - Lumefantrine

WEIGHT (KG)	**AGE**	**NUMBER OF TABLETS**		**Day 1**		**Day 2**		**Day 3**	
		Start Dose	After 8hour	Morning	Night	Morning	Night	Morning	Night
5 – 15	3 months up to 3 years	1 tablet	1 tablet	1 tablet	1 tablet	1 tablet	1 tablet	1 tablet	1 tablet
15 – 25	3 years up to 8 years	2 tablets	2 tablets	2 tablets	2 tablets	2 tablets	2 tablets	2 tablets	2 tablets
25 – 35	8 years up to 12 years	3 tablets	3 tablets	3 tablets	3 tablets	3 tablets	3 tablets	3tablets	3 tablets
35 and above	12 years and above	4 tablets	4 tablets	4 tablets	4 tablets	4 tablets	4 tablets	4 tablets	4 tablets

Analgesics-Antipyretics

Paracetamol:

Adult: Tablet paracetamol 1g 8 hourly for 5 days

Children: 2 months babies, 6mls syrup for post immunization pyrexia. 10mg/kg or 5mg/kg if baby is jaundiced.

3months babies – 1 year 60 – 120mg

1-5 years 120 – 250mg

Children 6-12 years 250 – 500mg

Doses may be repeated every 8 hours and a maximum of doses in 24 hours. This is given to control pain and decrease temperature symptoms.

Haematinics:

Multivites and Vitamin B-complex are given to correct anaemia.

Anti-convulsant

1. **Phenobarbitone:**

This may be prescribed to help prevent convulsion or stop the convulsion.

Adult 60 – 120mg at night orally

Children 8mg/kg daily orally

2. **Diazepam;**

This may also be given to prevent convulsion or stop convulsion.

250 micrograms per kilogram body weight by slow intravenous infusion.

Rectally, 200-500 micrograms per body weight which may be repeated when necessary.

Oxygen Therapy:

Oxygen is given to counter tissue anoxia in patients experiencing breathlessness.

Intravenous Infusion

1) 5% Dextrose, 10% Dextrose and Dextrose Saline are given to provide energy and expand blood volume.
2) Normal saline is given to provide sodium and electrolyte.
3) Other drugs that may be prescribed include corticosteroids. It may be administered where there is cerebral malaria.

NURSING MANAGEMENT

Reassurance (Psychotherapy):

Patient and relatives are reassured that, they are in the hands of competent health personnel who are ready to help patient to recover. This is done to relax them and also to win their confidence and co-operation.

Rest and Sleep:

1) This is ensured to conserve energy, promote relaxation and healing process.
2) Rest and sleep could be achieved by making bed free from creases, giving warm bath to relax the muscles of the patient, minimizing the noise on the ward by reducing the volume of the radio and television sets and restricting visitors.
3) Also, nearby windows can be opened to maintain proper ventilation.
4) Visitors must be restrained during visiting hours this helps to ensure that client is not disturb during their sleeping hours.

Position;

Ensure comfortable position which is not contraindicated to patient's condition. This is done to ensure his safety.

Observation:

1) Vital signs, that is temperature, pulse, respiration and blood pressure are monitored and recorded on the nurses' note depending on patient's condition to know if patient's condition is improving or deteriorating.
2) Infusion site is observed for patency and fluid intake and output chart is monitored.
3) Possible complication like respiratory distress is observed.
4) Moreover, the mental orientation of the patient to time, place and persons are observed as well as desired and a side effect of the drugs patient is given.

5) In patients with fever, if there are chills, more clothing are added to keep him or her warm, nearby windows are closed and fans are put off.
6) In hot stage, extra blankets or clothing are removed, patient is tepid sponged to reduce temperature. Nearby windows are opened and cold nourishing drinks like Fanta is served.
7) Vital signs are checked and compared with baseline vital signs.

Medication

1. Serve medication as prescribe.
2. Observe the right of medication including; the right rout, right patient, right dosage, right time etc.
3. Observe patient for the side effect of the drug served.
4. Educate patient on the need to take drugs as prescribe.
5. Educate patient to avoid the use of over the counter drugs

Personal Hygiene:

1) Good personal hygiene is ensured from hair to toe by washing patient's hair with shampoo and water, and cutting of fingernails and toenails to prevent harboring of dirt and microbes.
2) Patient's mouth is cared for with toothbrush at least twice daily to prevent infection and stimulate appetite.
3) Patient could be given bed bath or assisted bed bath to remove dirt and microbes from the skin, to improve circulation and also patient's comfort. At least, the bath should be twice daily and pressure areas like the occiput sacrum and shoulder are treated by applying soap into the palm and massaging in a circular motion to improve circulation.
4) Patient's bed linens are changed frequently when soiled or dirty to make patient comfortable.

Nutrition:

1) Patient is given a well nutritious diet such as vitamins to improve the immune system, carbohydrate for energy and protein to build worn-out tissues.
2) Food should be served in bits and dirty rags and bedpans should be removed from the scene.
3) The food patient prefers should be served and should be served attractively to stimulate his appetite.

Exercise:

Patient is encouraged to do active and passive exercises. It is to improve circulation, prevent muscle wasting and also makes ones feels relaxed. Exercises also help peristalsis and help remove toxins from the body.

Elimination:

1) Bowel and bladder elimination, patient is served with bedpan and urinal on demand.
2) Moreover, fluid and roughage intake is encouraged depending on patient's condition.
3) If elimination fails, a nearby tap is turned on to psyche-up the patient to urinate.
4) Warm compresses can be applied on the lower abdomen to relax the muscle and aid elimination. If all these nursing measures fail,
5) Catheter is finally passed.

Education:

1. Patient with malaria should be advised to complete the prescribed dosages even if the person is not experiencing signs and symptoms of the condition.
2. People infected with plasmodium, especially that of ovale and vivax type may harbor the parasite (plasmodium) in their liver cells after treatment and the risk of frequent remissions are possible.
3. They should also be educated on the predisposing causes such as stagnant chocked gutters.
4. The signs and symptoms such as high temperature, nausea and vomiting should be made known to people to enable them seek for early treatment.

5. All patients should be told to return to the hospital for blood examination after 4-5 days completion of treatment to assess whether the parasite has been completely eliminated from the body.

Prevention of Malaria

1. **Primary Level**

i. Ensure good environmental sanitation, example

ii. Weeding the environment

iii. Draining all stagnant water

iv. Desisting gutters

v. Proper means for storing and disposing refuse

vi. Regular spraying of breeding places of mosquitoes

vii. Use mosquito repellent and coils

viii. Sleep under mosquito treated nets

ix. Use mosquito-proof doors and windows

2. **Secondary Level**

i. Early detection of malaria is by screening for those who have malaria and tracing their contacts.

ii. Keeping surveillance

iii. Treat those who have malaria.

3. **Tertiary Level**

Rehabilitation, example getting adults back to work, children being taught by the hospital school teachers.

Complication

Some of the complications associated with malaria are;

1. Anemia
2. Cerebral malaria

3. Abortion in pregnant woman
4. Convulsion
5. Hepatitis
6. Splenomegaly
7. Acute renal failure
8. Hemolytic anemia

1.10B Literature Review on Heamolytic Aneamia

Definition

Anaemia is a condition in which the level of haemoglobin in the blood is below the expected normal range that is, 14-18g/dl for males and 12-16g/dl for females and for children the range is 9.5g/dl-15.5g/dl. It can also be defined as a condition in which the haemoglobin concentration is lower than normal, reflects the presence of fewer than normal red blood cells within circulation. As a result, the amount of oxygen delivered to the body tissues is also diminished

Incidence

Anaemia occurs in all age group and is the most common haematological condition. A type called iron deficiency anaemia is by far the most common in the world. More than 500million people are affected often in developing countries where there is inadequate intake of iron seen with vegetarian diet. It is also common in children, adolescent and pregnant women due to inadequate iron in the diet to keep up with increase growth.

Aetiology

There are many different kinds of anaemia but all can be classified into three broad etiologic categories. They may include

a. Loss of red blood cells; occurs when bleeding potentially from any major source such as bleeding from the gastrointestinal tract, uterus, nose or wound.
b. Decreased production of red blood cells resulting from a deficiency in the cofactors (including folic acid, vitaminB12 and iron) required for erythropoiesis. Red blood cells production may also be reduced if the bone marrow is suppressed (example, by tumour, medication, toxins) or is inadequately stimulated because of lack of erythropoietin (as occurs in chronic renal disease).
c. Increased destruction of red blood cells resulting from an overactive recticuloendothelial system (including hypersplenism) or when the bone marrow produces abnormal red blood cells that are then destroyed by the reticuloendothelial system (example sickle cell anaemia).

A conclusion as to whether anaemia is caused by destruction, or by inadequate production of red blood cells or a loss of red blood cells usually can be reached on the basis of the following factors;

- The marrows ability to respond to the decreased red blood cell (as evidence by an increased reticulocyte count in the circulating blood)
- The degree to which young red blood cells proliferate in the bone marrow and the manner in which they mature (as observed on bone marrow biopsy)
- The presence or absence of the end products of red blood cell destruction within circulation. (Example bilirubin level and decreased haptoglobin level).

Types/classifications of aneamia

1. Haemolytic Aneamia

2. Hypoproliferative aneamia

3. Bleeding / Haemorrhagic aneamia

Haemolytic aneamia

It is a form of aneamia due to hemolysis, the abnormal breakdown of red blood cells (RBCs), either in the blood vessels (intravenous hemolysis) or elsewhere in the human body (extravascular). This mostly occurs within the spleen, but also can occur in the reticuloendothelial system or mechanically (prosthetic valve damage). (Eric, O., 2021).

Hypoproliferative aneamia

It may be Iron deficiency, vitamin B 12 deficiency (megaloblastic) folate deficiency or as a result of cancer. In this type of aneamia, because of the decrease RBC production it is reflected by an inappropriate normal or normal or low reticulocyte count. (Eric, O., 2021).

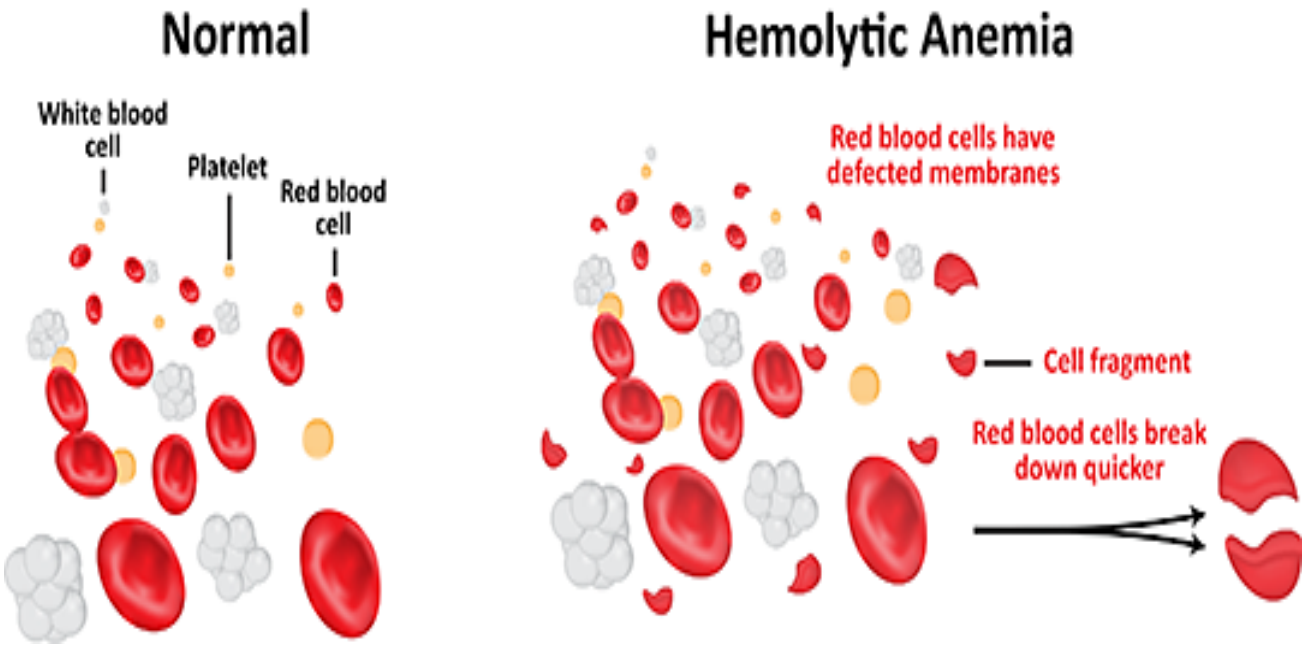
Haemorrhagic anaemia

It results from an acute or chronic blood loss which subsequently decreases the iron store and hence reducing haemoglobin level in the body. It occurs when an individual losses about 25% of circulating volume within some minutes. (Eric, O., 2021).

HAEMOLYTIC ANEAMIA

This stems from premature destruction of red blood cells which results in a liberation of haemoglobin from the red blood cell into the plasma. The increased red blood cell destruction results in tissue hypoxia which in turn stimulates erythropoietin production. This increased production is reflected in an increased reticulocyte count, as the bone marrow responds to the loss of red blood cells. The released haemoglobin is converted in large part to bilirubin; therefore the bilirubin concentration level rises.

Hemolytic Anemia



Haemolysis can result from the following;

I. An abnormal haemoglobin molecule becomes misshapen when deoxygenated making the erythrocytes sickle shape. The life span of such cell is reduced by early haemolysis which causes anaemia and this type is called sickle cell anaemia.

II. When there is a reduced globin synthesis with resultant reduced haemoglobin production and increased friability of the cell membrane, it leads to early haemolysis which results in a type of anaemia called thalassaemia.

III. Exposure of the red blood cells to antibodies leads to early haemolysis causing a type of anaemia called immune haemolytic anaemia. Alloantibodies (that is antibodies against the host or self) resulting from immunization or an individual with foreign antigens (e.g. immunization of Rhesus-negative person with Rhesus-positive blood). Alloantibodies tend to be large and cause immediate destruction of the sensitized red

blood cells either within the blood vessel or within the liver. The most common type is haemolytic transfusion reaction which occurs in the adult.

IV. The Glucose-6-phosphate Dehydrogenase is a gene that produces the enzyme within the red blood cell that is essential for membrane stability. A defect in the gene leads to early haemolysis of the red blood cell resulting in G-6-PD anaemia. It may be precipitated by certain stress factors like fever or medications like antimalaria drugs and others.

Incidence

Heamolytic aneamia represents approximately 5% of all aneamias.

It is rare with a 1 to 3 cases per 10,000 population per year.

Heamolytic aneamias are not specific to any race or sex but however slightly occur in females.

Although heamolytic aneamia can occur in persons of any age, hereditary disorders are usually evident early in life.

Predisposing factors

Certain medications such as;

Infections such as

Viral infections, including mononucleosis

Atypical pneumonia

Certain cancers:

Leukemia

Lymphoma – non-Hodgkinn but also Hodgkin

Collagen – vascular (autoimmune) diseases, such as systemic lupud erythematosus

Family history of heamolytic anaemia

Types of heamolytic aneamias

There are many types of hemolytic anemia. The condition can be inherited or acquired.

Inherited hemolytic anaemias

With inherited hemolytic anaemias, one or more genes that control the red blood cell production are faulty. This can lead to problems with the hemoglobin, cell membrane, or enzymes that maintain healthy red blood cells.

The abnormal cells may be fragile and breakdown while moving through the bloodstream. If this happens, an organ called the spleen may remove the cell debris from the bloodstream.

Types of inherited haemolytic anaemias

1. **Sickle Cell Anaemia**

Sickle cell anemia is a serious, inherited disease. In this disease, the body makes abnormal hemoglobin. This causes the red blood cells to have a sickle, or crescent, shape. Sickle cells don't last as long as healthy red blood cells. They usually die after only about 10 to 20 days. The bone marrow can't make new red blood cells fast enough to replace the dying ones. In the United States, sickle cell anemia mainly affects African Americans.

2. **Thalassemias**

Thalassemias are inherited blood disorders in which the body doesn't make enough of certain types of hemoglobin. This causes the body to make fewer healthy red blood cells than normal. Thalassemias

most often affect people of Southeast Asian, Indian, Chinese, Filipino, Mediterranean, or African origin or descent.

3. Hereditary Spherocytosis

In this condition, a defect in the surface membrane (the outer covering) of red blood cells causes them to have a sphere, or ball-like, shape. These blood cells have a lifespan that's shorter than normal. Hereditary spherocytosis is the most common cause of hemolytic anemia among people of Northern European descent.

4. Hereditary Elliptocytosis (Ovalocytosis)

Like hereditary spherocytosis, this condition also involves a problem with the cell membrane. In this condition, the red blood cells are elliptic (oval) in shape. They aren't as flexible as normal red blood cells, and they have a shorter lifespan.

5. Glucose-6-Phosphate Dehydrogenase (G6PD) Deficiency

In G6PD deficiency, the red blood cells are missing an important enzyme called G6PD. G6PD is part of the normal chemistry inside red blood cells. In G6PD deficiency, if red blood cells come into contact with certain substances in the bloodstream, the missing enzyme causes the cells to rupture (burst) and die.

Many factors can trigger the breakdown of the red blood cells. Examples include taking sulfa or antimalarial medicines; being exposed to naphthalene, a substance found in some moth balls; eating fava beans; or having an infection. G6PD deficiency mostly affects males of African or Mediterranean descent. In the United States, the condition is more common among African Americans than Caucasians.

6. Pyruvate Kinase Deficiency

In this condition, the body is missing an enzyme called pyruvate kinase. Not having enough of this enzyme causes red blood cells to break down easily. This disorder is more common among the Amish than other groups.

ACQUIRED HAEMOLYTIC ANAEMIAS

With acquired hemolytic anemias, the red blood cells may be normal. However, some other disease or factor causes the body to destroy red blood cells and remove them from the bloodstream. The destruction of the red blood cells occurs in the bloodstream or, more commonly, in the spleen.

1. Immune Haemolytic Anaemia

In immune hemolytic anemia, the immune system destroys the red blood cells. The three main types of immune hemolytic anemia are autoimmune, alloimmune, and drug-induced.

A. Autoimmune haemolytic anaemia (AIHA).

In this condition, the immune system makes antibodies (proteins) that attack the red blood cells. Why this happens isn't known. AIHA accounts for half of all cases of hemolytic anemia. AIHA may come on very quickly and become serious. Having certain diseases or infections can raise your risk for AIHA. Examples include: Autoimmune diseases, such as lupus Chronic lymphocytic leukemia Non-Hodgkin's lymphoma and other blood cancers Epstein-Barr virus Cytomegalovirus Mycoplasma pneumonia Hepatitis HIV. AIHA also can develop after one have a blood and marrow stem cell transplant.

In some types of AIHA, the antibodies made by the body are called ***warm antibodies***. This means they're active (that is, they destroy red blood cells) at warm temperatures, such as body temperature. In other types of AIHA, the body makes cold-reactive antibodies. These antibodies are active at cold temperatures.

Cold-reactive antibodies can become active when parts of the body, such as the hands or feet, are exposed to temperatures lower than 32 to 50 degrees Fahrenheit (0 to 10 degrees Celsius). Warm antibody AIHA is more common than cold antibody AIHA.

B. **Alloimmune haemolytic anaemia.**

This type of hemolytic anemia occurs if the body makes antibodies against red blood cells that one get from a blood transfusion. This can happen if the transfused blood is a different blood type than one's blood.

This type of hemolytic anemia also can occur during pregnancy if a woman has Rh-negative blood and her baby has Rh-positive blood. "Rh-negative" and "Rh-positive" refer to whether the blood has Rh factor. Rh factor is a protein on red blood cells.

C. Drug-induced haemolytic anaemia.

Certain medicines can cause a reaction that develops into hemolytic anemia. Some medicines, such as penicillin, bind to red blood cell surfaces and can cause antibodies to develop.

Other medicines cause hemolytic anemia in other ways. Examples of these medicines include chemotherapy, acetaminophen, quinine and antimalarial medicines, anti-inflammatory medicines, and levodopa.

2. Mechanical Haemolytic Anaemias

Physical damage to red blood cell membranes can cause them to break down faster than normal. Damage may be due to:

- Changes in the small blood vessels.
- An artificial heart valve or other device used in blood vessels.
- Hemodialysis: This treatment for kidney failure removes waste products from the blood.

- A heart-lung bypass machine, which may be used during open-heart surgery.
- Preeclampsia or eclampsia: Preeclampsia is high blood pressure during pregnancy. Eclampsia, which follows preeclampsia, is a serious condition that causes seizures in pregnant women.
- Malignant hypertension: This is a condition in which your blood pressure suddenly and rapidly rises.
- Thrombotic thrombocytopenic purpura: This rare blood disorder causes blood clots to form in small blood vessels throughout the body.

Blood cell damage also may occur in the limbs as a result of doing strenuous activities, such as taking part in marathons.

3. **Paroxysmal Nocturnal Hemoglobinuria**

Paroxysmal nocturnal hemoglobinuria or PNH, is a disorder in which the red blood cells are faulty due to a lack of certain proteins. The body destroys these cells more quickly than normal.

People who have PNH are at increased risk for blood clots in the veins and low levels of white blood cells and platelets.

Other Causes of Damage to Red Blood Cells

Certain infections and substances also can damage red blood cells and lead to hemolytic anemia. Examples include malaria and blackwater fever, tick-borne diseases, snake venom, and toxic chemicals.

Pathophysiology

Hemolysis may be:

- Acute
- Chronic
- Episodic

Hemolysis may also be:

- Extravascular
- Intravascular
- Both

1. **Normal red blood cell processing**

Senescent RBCs lose membrane and are cleared from the circulation largely by the phagocytic cells of the spleen, liver, bone marrow, and reticuloendothelial system. Hemoglobin is broken down in these cells primarily by the heme oxygenase system. The iron is conserved and reutilized, and heme is degraded to bilirubin, which is conjugated in the liver to bilirubin glucuronide and excreted in the bile.

2. **Extravascular hemolysis**

Most pathologic hemolysis is extravascular and occurs when damaged or abnormal RBCs are cleared from the circulation by the spleen and liver. The spleen usually contributes to hemolysis by destroying mildly abnormal RBCs or cells coated with warm antibodies. An enlarged spleen may sequester even normal RBCs. Severely abnormal RBCs or RBCs coated with cold antibodies or complement (C3) are destroyed within the circulation and in the liver, which (because of its large blood flow) can remove damaged cells efficiently. In extravascular hemolysis, the peripheral smear will show microspherocytes or with cold agglutinins, erythrocyte agglutination if the blood is not warmed upon collection.

3. **Intravascular haemolysis**

Intravascular hemolysis is an important reason for premature RBC destruction and usually occurs when the cell membrane has been severely damaged by any of a number of different mechanisms, including:

- Autoimmune phenomena
- Direct trauma (eg, march hemoglobinuria)
- Shear stress (eg, defective mechanical heart valves)

- Disseminated intravascular coagulation (DIC)
- Toxins (eg, clostridial toxins, venomous snake bite)

Intravascular hemolysis results in hemoglobinemia when the amount of hemoglobin released into plasma exceeds the hemoglobin binding capacity of the plasma-binding protein haptoglobin, a protein normally present in concentrations of about 100 mg/dL (1.0 g/L) in plasma, resulting in the reduction of unbound plasma haptoglobin. With hemoglobinemia, unbound hemoglobin dimers are filtered into the urine and reabsorbed by renal tubular cells; hemoglobinuria results when reabsorptive capacity is exceeded. Iron is released from catabolized hemoglobin and embedded in hemosiderin within the tubular cells; some of the iron is assimilated for reutilization and some reaches the urine when the tubular cells slough.

Consequences of haemolysis

Unconjugated (indirect) hyperbilirubinemia and jaundice occur when the conversion of hemoglobin to bilirubin exceeds the liver's capacity to conjugate and excrete bilirubin. Bilirubin catabolism causes increased stercobilin in the stool and urobilinogen in the urine and sometimes cholelithiasis.

The bone marrow responds to the excess loss of RBCs by accelerating production and release of RBCs, resulting in a reticulocytosis due to increased production of erythropoietin by the kidneys in response to the ensuing anemia.

Symptoms and signs of haemolytic anemia

- Pallor
- Fatigue
- Dizziness
- Possible hypotension.
- Weakness

- Pale skin
- Jaundice, or yellowing of the skin and eyes
- Dark-colored urine
- Fever
- Confusion
- Intolerance to physical activity
- Enlargement of the spleen and liver
- Fast heart beat
- Loss of appetite
- Heart murmur

Diagnostic tests and procedure

Full Blood Count

The first test used to diagnose hemolytic anemia is a complete blood count (FBC). The CBC measures many parts of your blood such as:

- Hemoglobin and Hematocrit levels.

Hemoglobin is an iron rich protein in red blood cells that carries oxygen to the body. Hematocrit is a measure of how much space red blood cells take up in your blood. A low level of hemoglobin or hematocrit is a sign of hemolytic anemia.

- Red blood cells
- White blood cells
- platelets count.
- Mean corpuscular volume (MCV).

MCV is a measure of the average size of your red blood cells. The results may be a clue as to the cause of your anemia.

- ❖ Reticulocyte count.

A reticulocyte count measures the number of young red blood cells in your blood. The test shows whether your bone marrow is making red blood cells at the correct rate. People who have hemolytic anemia usually have high reticulocyte counts because their bone marrow is working hard to replace the destroyed red blood cells.

- ❖ Peripheral smear.

For this test, patient red blood cells is observed through a microscope. Some types of hemolytic anemia change the normal shape of red blood cells.

- ❖ Coombs' test.

This test can show whether individual's body is making antibodies (proteins) to destroy red blood cells.

- ❖ Hemoglobin electrophoresis.

This test looks at the different types of hemoglobin in the blood. It can help diagnose the type of anemia one is having.

- ❖ Testing for paroxysmal nocturnal hemoglobinuria (PNH).

In PNH, the red blood cells are missing certain proteins. The test for PNH can detect red blood cells that are missing these proteins.

- ❖ Osmotic fragility test.

This test looks for red blood cells that are more fragile than normal. These cells may be a sign of hereditary spherocytosis (an inherited type of hemolytic anemia).

- Testing for glucose-6-phosphate dehydrogenase (G6PD) deficiency.

In G6PD deficiency, the red blood cells are missing an important enzyme called G6PD. The test for G6PD deficiency looks for this enzyme in a sample of blood

- Bone Marrow Tests

Bone marrow tests show whether the bone marrow is healthy and making enough blood cells. The two bone marrow tests are aspiration and biopsy.

For a bone marrow aspiration, the doctor removes a small amount of fluid bone marrow through a needle. The sample is examined under a microscope to check for faulty cells.

A bone marrow biopsy may be done at the same time as an aspiration or afterward. For this test, the doctor removes a small amount of bone marrow tissue through a needle. The tissue is examined to check the number and type of cells in the bone marrow.

Bone marrow tests won't be needed if blood tests show what's causing your hemolytic anemia.

General treatment

Treatments for hemolytic anemia include blood transfusions, medicines, plasmapheresis, surgery, blood and marrow stem cell transplants, and lifestyle changes.

People who have mild hemolytic anemia may not need treatment, as long as the condition doesn't worsen. People who have severe hemolytic anemia usually need ongoing treatment. Severe hemolytic anemia can be fatal if it's not properly treated.

Goals of treatment

The goals of treating hemolytic anemia include:

- Reducing or stopping the destruction of red blood cells

- Increasing the red blood cell count to an acceptable level
- Treating the underlying cause of the condition

Treatment will depend on the type, cause, and severity of the hemolytic anemia. The doctor also will consider age, overall health, and medical history.

If one have an inherited form of hemolytic anemia, it's a lifelong condition that may require ongoing treatment. If it is an acquired form of hemolytic anemia, it may go away if its cause can be found and corrected.

- **Blood Transfusions**

Blood transfusions are used to treat severe or life-threatening hemolytic anemia.

A blood transfusion is a common procedure in which blood is given to you through an intravenous (IV) line in one of your blood vessels. Transfusions require careful matching of donated blood with the recipient's blood.

- **Medicines**

Medicines can improve some types of hemolytic anemia, especially autoimmune hemolytic anemia (AIHA). Corticosteroid medicines, such as prednisone, can stop your immune system from, or limit its ability to, make antibodies (proteins) against red blood cells.

If one does not respond to corticosteroids, other medicines can be prescribed to suppress the immune system. Examples include; rituximab and cyclosporine.

In people who have sickle cell anemia, fetal hemoglobin helps prevent red blood cells from sickling and improves anemia.

- **Plasmapheresis**

Plasmapheresis is a procedure that removes antibodies from the blood. For this procedure, blood is taken from the body using a needle inserted into a vein.

The plasma, which contains the antibodies, is separated from the rest of the blood. Then, plasma from a donor and the rest of the blood is put back in your body. This treatment may help if other treatments for immune hemolytic anemia don't work.

- **Surgery**

Some people who have hemolytic anemia may need surgery to remove their spleens. The spleen is an organ in the abdomen. A healthy spleen helps fight infection and filters out old or damaged blood cells.

An enlarged or diseased spleen may remove more red blood cells than normal, causing anemia. Removing the spleen can stop or reduce high rates of red blood cell destruction.

- **Blood and Marrow Stem Cell Transplant**

In some types of hemolytic anemia, such as thalassemias, the bone marrow doesn't make enough healthy red blood cells. The red blood cells it does make may be destroyed before their normal lifespan is over. Blood and marrow stem cell transplants may be used to treat these types of hemolytic anemia.

A blood and marrow stem cell transplant replace damaged stem cells with healthy ones from another person (a donor).

During the transplant, which is like a blood transfusion, the donated stem cell is transferred through a tube placed in a vein. Once the stem cells are in the body, they travel to the bone marrow and begin making new blood cells.

Lifestyle Changes

Individual's having AIHA with cold-reactive antibodies, should try to avoid cold temperatures. This can help prevent the breakdown of red blood cells. It's very important to protect the fingers, toes, and ears from the cold.

To protect oneself, one can:

- Wear gloves or mittens when taking food out of the refrigerator or freezer.
- Wear a hat, scarf, and a coat with snug cuffs during cold weather.
- Turn down air conditioning or dress warmly while in air-conditioned spaces.
- Warm up the car before driving in cold weather.

People born with glucose-6-phosphate dehydrogenase (G6PD) deficiency can avoid substances that may trigger anemia. For example, avoid fava beans, naphthalene (a substance found in some moth balls), and certain medicines.

Prognosis

The prognosis for patients with hemolytic anemia depends on the underlying cause. Overall, mortality rates are low in hemolytic anemias. However, the risk is greater than older patients and patients with cardiovascular impairment. Morbidity depends on the etiology of the hemolysis and the underlying disorder such as sickle cell anemia or malaria.

Nursing management

Psychological Care

Reassure client to allay anxiety since client looks anxious and confuse about the outcome of her condition. This is achieved by the following steps which include explaining all procedures to client and family to free

their mind of anxiety as well as education of client and family on the disease condition, causes, signs and symptoms, treatment, diagnosis, prevention, prognosis and its complication.

Client/family is informed of being in hands of competent staffs who will manage the condition well for early recovery. They should be allowed to ask questions as well as possible and understandable answers given. Client and family are allowed to express their fears as diversional therapies can be provided to switch their mind off fear of outcome of the condition.

Rest and sleep

It is necessary to provide adequate rest and sleep to promote good health and full recovery. Client should be nursed in a well, ventilated and clean environment to reduce high risk of infection and elevation of top end of bed for avoiding breathing difficulties

A quite and peaceful environment should be ensured in ways such as lowering ward television and minimizing communication and discussions to aid client obtain optimal sleep without interruptions. Nursing procedures should be organized to minimize sleep interrupt and ensure dim lighting system to prevent light rays destructing sleep.

Observation

Monitor all laboratories finding in other to notice any changes such as low haemoglobin level and presence of malaria parasite presence in blood film for early treatment to be given. Check vital signs accurately to monitor any rise or fall in temperature such as pyrexia or high blood pressure for treatment like tepid sponging.

Observe eating patterns to detect weight gain and recovery. If there is bleeding check for the quantity and observe the frequency so that measures can be put in place to arrest haemorrhage in other to prevent occurance of shock.

Observe for thrombophlebities around the intravenous site to avoid occurrence of a thrombus and blockage of flow of intravenous fluid. Blood reaction after transfusion is observed to detect any abnormalities such as rashes on the skin, spasm when there is incompatibility.

Observe for pallor and palpitation as well as verbal and non-verbal actions.

Protection from Injury

Due to drowsiness, fatigue and dizziness, client is monitored regularly and protected with pillows or bed side rails to prevent fall.

Nutrition

Due to the reduction of blood components, iron containing foods like eggs, liver, green leafs and cabbage should be given to replace lost blood.

Vitamin foods like oranges, banana, pawpaw, oil, fish and green leafs should be encouraged for tissue repair and growth.

Other nutrients like carbohydrate, protein, mineral containing foods can be ensured to improve health status and growth as well as tissue repair.

Roughages like oranges should be given to prevent constipation, fruit juices can be served in- between meals to stimulate appetite.

Exercises

This helps in improving patient's recovery as well as circulation. Mild and moderate exercises can be performed such as deep breathing exercises and extension of the joint can be undertaken. If client is fit to walk, she can be assisted to walk around the ward to prevent joint stiffness and muscle wasting.

Elimination

This creates comfortability and relaxation when undertaken properly. Bedpan should be served on request as well as urinal. Ensure fluid intake of about 3 to 4liters a day as well as adequate intake of roughages and fruits to promote bowel movement and assess for any abnormality.

Personal Hygiene

Mouth care is given regularly to combat dryness or cracking of the lips and infects of the mouth like halitosis and gingivitis. The lips should be kept supple with vaseline.

Client should be bathed and groomed twice daily, finger nails should be trimmed as well as pressure areas treated and if there is wound change soiled dressing.

Bed linens should be changed regularly and made free from creases and cramps to avoid increase risk of infection.

Chemotherapy

Prescribed medications are served as ordered and recorded accordingly. The side effects and reaction of drugs are observed, as vital signs are checked to detect sudden changes.

Psychotherapy

Client/family normally becomes anxious when there are changes like pyrexia, chills and paleness as well as respiratory distress. The nurse should allow them to express their fears. The nurse should explain to them the treatment regimen.

Reassure client of being in competent hands as well as family.

Education

Educate client as well as family on the cause, signs and symptoms, and prevention of the disease. Client and family are educated on the need of environmental and personal hygiene to reduce the risk of infection.

Client is taught on the need for follow up's care and continuation of care. Client and family are educated on the continuation of drug after discharge and they are reminded on the time, dose, dosage of the medication as well as regular intake of the drugs.

The nurse should explain the need to rest, taken of balanced diet, sleeping in a well- ventilated room and need for mouth care at least twice daily.

Prevention

Client with low leucocytes count need special measures to prevent infection with specific antibiotics, however these are given cautiously because they tend to encourage persistent strains of organism.

Self- medication should be avoided in order not to consume drugs like felbamate for a long time and toxins like benzenes. Patient with low haemoglobin level may need respiratory support in addition to blood transfusion.

Educate client and family on proper environmental and personal hygiene and teach client to wash hands thoroughly after handling objects and visiting the wash room.

You can't prevent inherited types of hemolytic anemia. One exception is glucose-6-phosphate You can't prevent inherited types of hemolytic anemia. One exception is glucose-6-phosphate dehydrogenase (G6PD) deficiency.

People born with G6PD deficiency, should avoid substances that may trigger the condition. For example, avoid fava beans, naphthalene (a substance found in some moth balls), and certain medicines (as your doctor advises).

Some types of acquired hemolytic anemia can be prevented. For example, reactions to blood transfusions, which can cause hemolytic anemia, can be prevented. This requires careful matching of blood types between the blood donor and the recipient.

Prompt and proper prenatal care can help you avoid the problems of Rh incompatibility Rh incompatibility. This condition can occur during pregnancy if a woman has Rh-negative blood and her baby has Rh-positive blood. "Rh-negative" and "Rh-positive" refer to whether your blood has Rh factor. Rh factor is a protein on red blood cells.

Rh incompatibility can lead to hemolytic anemia in a fetus or newborn.

Complications

- Heart failure: As the heart compensates by pumping faster than the normal rate, the heart muscles gradually weaken until the muscles wear out and the heart fails to function.
- Paresthesias: Paresthesias develop when the muscles do not have enough oxygen delivered to them.
- Delirium: Insufficient oxygen in the brain results in delirium and is considered a fatal complication of anemia.

1.11 Validation of Data Collected

Validation of data is defined according to Weller (2014), as the extent to which a data measures, indicators or method of data collection possesses the quality of being sound or true, as far as can be judge. M.A. present condition resulted from the bite of a female Anopheles mosquito that causes malaria as evidenced by the laboratory results. The clinical features presented by the patient and diagnostic investigations conducted on her confirmed that she was suffering from Severe Malaria secondary to Haemolytic Anaemia.

All the information gathered from the patient was found to be true after comparing with information obtained from patient's relative through series of interviews. Also, the patient's folder provided the information to confirm the data collected. The information from the literature review also confirmed the data gathered. After collecting all these informations, I realized that the data collected were similar and so considered valid for the study.

CHAPTER TWO
ANALYSIS OF DATA

2.0 Introduction

According to Weller (2014), Analysis is the detailed study or the act of determining the component parts of a substance. This chapter forms the second phase of the nursing process, which deals with the critical examination and interpretation of data collected during the assessment of the patient. It also talks about analysing the information gathered from the patient, family and other health team members as well as the literature review. It also deals with the result of investigations, medical treatment, patient and family's strength and possible problem identified which requires nursing diagnosis and intervention.

2.1 Comparison Of Data With Standards

This is where the data collected on the health of the patient is compared with those in the literature review. These includes diagnostic investigations, causes, signs and symptoms, treatments and complications.

A. Diagnostic investigation/test

Diagnosis is the determination of the nature of a disease and Test is defined as the analysis of the composition of a substance by the use of chemical and reagents and or to determine the presence or absence of a substance (Weller, 2014).

The following investigations and test were carried out on M. A. to assist treatment.

i. Blood for malaria parasite

ii. Blood for full blood count

iii. Blood for sickling test

iv. Glucose-6-phosphate dehydrogenase (G6PD).

v. Blood for typhoid

Table 1: diagnostic test in literature review compared with those carried out on my client

Diagnostic Test Outlined In The Literature Review	**Diagnostic Test Carried On The Patient**
Hemoglobin and Hematocrit levels	Haemoglobin level was carried out on my patient but haematocrit level was not carried
Red blood cells	Blood for red blood cell count was carried out on my patient.
Peripheral smear.	Peripheral smear test was not carried out on my patient
Mean corpuscular volume (MCV).	Blood for mean corpuscular volume was not carried out on my patient.
Reticulocyte count.	Reticulocyte count test was not carried out on my patient.
platelets count	Platelet count test was not carried on my patient.
White blood cell count	White blood cell count was carried out on my patient.
Coombs' test.	Coobs’ test was not carried out on the patient.
Hemoglobin electrophoresis.	Haemoglobin electrophoresis test was not carried out on my patient.

Testing for paroxysmal nocturnal hemoglobinuria (PNH).	Paroxysmal nocturnal hemoglobinuria test was not carried out on my patient.
Osmotic fragility test.	Osmotic fragility test was not carried out on my patient.
Testing for glucose-6-phosphate dehydrogenase (G6PD) deficiency.	Glucose-6-phosphate dehydrogenase (G6PD) was carried on my patient.
Bone Marrow Tests	Bone marrow test was not carried out on my patient.

However certain laboratory investigations such as blood for sickling test, blood for malaria parasite and typhoid test were not mentioned in the literature review but yet were carried out to rule out other conditions apart from haemolytic anaemia such as sickle cell anaemia, malaria and typhoid fever. Blood for full blood count such RBCs, WBCs, haemoglobin level and also glucose-6-phosphate dehydrogenase was mentioned in the literature review. It was carried out to know the damage of RBCs, haemoglobin level and also number of infections.

TABLE 2: Diagnostic Investigations /Tests

DATE	**SPECIMEN**	**INVESTIGATIONS**	**RESULTS**	**NORMAL VALUES**	**INTERPRETATION**	**REMARKS**
31/10/21	Blood	Haemoglobin level estimation	3.8g/dl	Male 13- 18g/dl Female	Client was very anaemic since her haemoglobin	Whole blood transfusion

				12-16g/dl Children 9.5g/dl-15.5g/dl	level was below normal	
31/10/21	Blood	Red blood cell count	3.81 10^6/UL	4.50-5.50K/UL	Client red blood cell was below normal range indicating the present of anaemia	Whole blood transfusion was done.
31/10/21	Blood	White blood cell count	16.8 10^3/UL	2.6-8.50K/UL	White blood cell count was above normal range indicating the present of infection	Anti-biotic ordered. E.g. IV metronidazole 83mg tds x 48 hours.
31/10/21	Blood	Sickling status	Negative	Normal red blood cell	Client is gen B+type AA and has normal red blood cell	No treatment was given
31/10/21	Blood	Blood film for malaria parasite	Positive	Has malaria parasite in her blood	Malaria parasite present in blood.	IV Artesunate 33mg 0, 12, 24 hours was administered.

31/10/21	Blood	G6PD	Normal	Normal	No G6PD found	No treatment given
31/10/21	Blood	Grouping and cross matching	Blood group B positive	B (+,-), O (+,-)	Client belonged to blood group B+ with Rhesus Positive, (B+).	Client was transfused with O positive blood with batch number
31/10/21	Blood	Typhoid	Negative	Has typhoid	Client has no typhoid present in the blood	No treatment was given.

(B) CAUSES OF CLIENT'S CONDITION

My client condition could be attributed to bites from infected female anopheles mosquitoes infected with the plasmodium genus with reference to the literature review. The genus includes the following;

1. Plasmodium falciparum
2. Plasmodium malarae
3. Plasmodium vivax
4. Plasmodium ovale
5. Plasmodium knowlensi

According to the investigations, the plasmodium parasites (falciparum) were present in the patient's blood which is responsible for the breakdown and premature rupture of the RBCs leading to lowering and damage of the RBCs.

Table 3: CLINICAL FEATURES/ MANIFESTATIONS

The table below shows Clinical Features or manifestations Exhibited by Client Compared with Those in the Literature Review**.**

clinical features indicated in the literature review	**clinical features exhibited by the patient**
Pallor	Patient had pallor
Fatigue	Patient had fatigue
Dizziness	Patient did not experienced dizziness
Possible hypotension.	Patient had no possible hypotention
Weakness	Patient had body weakness
Pale skin	Patient had pale skin
Jaundice, or yellowing of the skin and eyes	Patient did not have jaundice
Dark-colored urine	Patient had no dark-colored urine
Fever	Patient's body temperature was high (38.3 degree Celsius)
Confusion	Patient did not experienced confusion
Intolerance to physical activity	Patient experienced activity intolerance
Enlargement of the spleen and liver	Patient had no enlarged spleen and liver
Fast heart beat	Patient had no fast heart beat
Heart murmur	Patient did not experienced heart murmur

Loss of appetite	Patient experienced loss of appetite

Comparing the clinical manifestations of my patient to that of the literature review, she presented most of the clinical features in the literature review suggesting that patient had severe malaria which complicated to haemolytic anaemia. Though cough is not a manifestation of severe malaria, the patient exhibited it.

D. TREATMENT:

It is the management and medical care given to a patient for an illness or injury.

The following were the treatments which were given to M. A.

1. IV Artesunate 33mg 0, 12, 24 hours.
2. IV Metronidazole 83mg tds x 48 hours for infection due lowered immunity.
3. Syrup Viscof D 5mls tid x 7days.
4. Tab Zinc 20mg daily x 10.
5. Rectal Diazepam 2.5mg
6. Syrup Paracetamol 5mls tds x 5 days.
7. Syrup multivitamin 5mls 8 hourly x 7 days.
8. IV laxis 11mg as premedication.
9. IVF ringers lactate 500mls.
10. 4.3L Dextrose in 1/5 normal saline 250mls
11. Hemotransfusion of 400mls and 220mls whole blood
12. Syrup A/L 20/120mg bd x 3
13. IV hydrocortisone 25mg
14. Lexsporin cream twice daily

Table four: **comparison of treatment given to my client to that of the treatment in the literature review**

Treatment in Literature Review	**Treatment Given to my Client**
Antimalarial drugs; eg Artesunate Amodiaquine, Arthemeter-Lumefantrine	a. I.V Artesunate 33mg 0, 12 ,24 hours was administered.
Analgesics-Antipyretics; eg Paracetamol	Syrup Paracetamol 5mls tds x 5 was given
Haematinics: eg Multivites	Syrup multivitamin 5mls 8 hourly x 7 days was given
Anti-convulsant; eg Phenobarbitone, Diazepam	Rectal Diazepam 2.5mg was given
Oxygen Therapy	Oxygen was not given
Intravenous Infusion; eg % Dextrose, 10% Dextrose and Dextrose Saline, Normal saline	Intravenous 4.3% Dextrose in 1/5NS and ringers lactate 500mls were given.

From the table above, Oxygen was not administered since the doctor knew the child can breathe on his own and other medications were also given but were not mentioned in literature. However, the rest of the treatment in the literature review was given to the patient.

The table below gives the details of the Pharmacology of drugs given to my patient.

TABLE 5: PHARMACOLOGY OF DRUGS GIVEN TO M.A

DATE	**DRUG**	**DOSAGE/ROUTE OF ADMINISTRATION**	**CLASSIFICATION**	**DESIRED EFFECT/ACTION**	**ACTUAL ACTION OBSERVED**	**SIDE EFFECT/REMARKS**
31/10/21	Artesunate	33mg at (0,12,24) hourly. Route: Intravenously	Anti-malaria	To destroy parasite of malaria in blood	Malaria treated, evidenced by resolution of clinical features of severe malaria	Dizziness, deafness, visual disturbances, thrombocytopenia None of the above was observed.
31/10/21	IV Metronidazole	83mg tds x 48 hours Route: Intravenously	Antibacterial, antiprotozoal	Disrupts DNA, inhibiting nucleic acid synthesis.	Patient's infection resolved	Anorexia, dry mouth, diarrhoea, constipation, dizziness. None of the above effect was observed

TABLE 5: PHARMACOLOGY OF DRUGS GIVEN TO M.A

DATE	DRUG	DOSAGE/ROUTE OF ADMINISTRATION	CLASSIFICATION	DESIRED EFFECT/ACTION	ACTUAL ACTION OBSERVED	SIDE EFFECT/REMARKS
31/10/21	Syrup Viscof D	5mls tid x 7days. Route: Orally	Cough suppressant	It affects the cough center in the brain which intend reduces the urge to cough.	Patient cough was relieved.	Stomach upset, Sleepiness, drowsiness, blurred vision, shakiness. None of the above was observed.
31/10/21	Tab Zinc	20mg daily x 10. Route: Orally	Trace element	It helps the immune system fight off bacteria and viruses.	Patient's infection resolved.	Heart burn, nausea, sore throat, mouth sore. None of the above effect was observed

TABLE 5: PHARMACOLOGY OF DRUGS GIVEN TO M.A

DATE	DRUG	DOSAGE/ROUTE OF ADMINISTRATION	CLASSIFICATION	DESIRED EFFECT/ACTION	ACTUAL ACTION OBSERVED	SIDE EFFECT/REMARKS
31/10/21	Rectal Diazepam	Rectal Diazepam 2.5mg Route: Rectal	Benzodiazepines	It is used to relieve muscle spasm and to provide sedation and also works by calming the brain and nerves	Patient was relieved from convulsion	Drowsiness, dizziness, constipation, tiredness, nausea, headache, dry mouth. None of the above was observed.
31/10/21	Acetaminophen (Paracetamol)	Syrup paracetemol 5ml tds for 5 days Route: Orally	Non-narcortic analgesics and antipyretic	It blocks pain impulses by inhibiting prostaglandins synthesis	Fever was reduces and pain relief	haemolytic anaemia, neutropenia, leucopenia, pancytopenia, thrombocytopenia, jaundice, severe liver damage, skin rashes None of the side effect was observed.

TABLE 5: PHARMACOLOGY OF DRUGS GIVEN TO M.A

DATE	DRUG	DOSAGE/ROUTE OF ADMINISTRATION	CLASSIFICATION	DESIRED EFFECT/ACTION	ACTUAL ACTION OBSERVED	SIDE EFFECT/REMARKS
31/10/21	Syrup Multivitamin	5ml 8houly x7 Route: Orally	Vitamin supplement	To provide vitamins that is not taken in through the diet. To treat or prevent vitamin deficiency	Helped improve her appetite for food. And signs of vitamins deficiency subsided features of severe malaria	Rashes, hives, itching, tightness in the chest, swelling of the mouth, face lips or tongue. None of the side effect was observed.
31/10/21	IV laxis	11mg as premedication Route: Orally	Loop diuretics	For the prevention of adverse hemodynamic effects and pulmonary edema associated with blood product transfusion	It prevented edema associated with blood transfusion	Confusion, nausea, vomiting, dehydration None of the above effect was observed

TABLE 5: PHARMACOLOGY OF DRUGS GIVEN TO M.A

DATE	DRUG	DOSAGE/ROUTE OF ADMINISTRATION	CLASSIFICATION	DESIRED EFFECT/ACTION	ACTUAL ACTION OBSERVED	SIDE EFFECT/REMARKS
31/10/21	IVF ringers lactate	500mls. Route: Intravenously	Alkalinizing agents	To replace water and electrolyte loss in patient with low blood volume	It improved patient fluid and electrolyte balance	Agitation, back pain, decreased heart rate, blurred vision, irritability, headache None of the above was observed.
31/10/21	Dextrose Normal Saline	250mls 24hours x 72hours Route: Intravenously	Caloric and nutritional replacement. Hypertonic solution intravenous solution	It minimizes glycogenesis and promote anabolism in patient whose oral caloric intake is limited.	Patient's hydration level was maintained.	Fluid overload phlebitis, tissue necrosis and hypovolaemia. None of the above effect was observed

TABLE 5: PHARMACOLOGY OF DRUGS GIVEN TO M.A

DATE	DRUG	DOSAGE/ROUTE OF ADMINISTRATION	CLASSIFICATION	DESIRED EFFECT/ACTION	ACTUAL ACTION OBSERVED	SIDE EFFECT/REMARKS
31/10/21	Whole blood	400ml of whole blood with blood group "B" with rhesus positive. Route: Intravenously	B (+,-), O (+,-)	To correct haemoglobin level, red blood cells count hematocrit and increased blood volume.	Hemoglobin level increases, red blood cell count as well as hematocrit	Urticarial rash, vomiting, shock, pruritus, restlessness. None of the above was observed.
1/11/21	Syrup Artemether Lumefantrine	20/120mg bd x 3 Route: Orally	Antimalarial	To destroy malaria parasite in blood	Malaria treated, evidenced by resolution of clinical features of severe malaria	Dizziness, deafness, visual disturbances, thrombocytopenia None of the above effect was observed

TABLE 5: PHARMACOLOGY OF DRUGS GIVEN TO M.A

DATE	DRUG	DOSAGE/ROUTE OF ADMINISTRATION	CLASSIFICATION	DESIRED EFFECT/ACTION	ACTUAL ACTION OBSERVED	SIDE EFFECT/REMARKS
1/11/21	IV hydrocortisone	25mg Route: Intravenously	Corticosteroids	It works by activating natural substances in the skin to reduce swelling, redness and itching.	Patient was relieved from skin itching and rashes.	Rash, hives. Depression, seizures, vision problems, joint pain, dizziness. None of the above was observed.
1/11/21	Lexsporin cream	Daily Route: Topically	Topical antibiotics	To treat skin infections and itchings	Patient was relieved from skin itching and rashes.	Pain, skin rashes, swelling, redness None of the above was observed.

COMPLICATIONS

With reference to the literature review the complications of malaria includes:

1. Cerebral malaria
2. Anemia
3. Abortion in pregnant woman
4. Convulsion
5. Hepatitis
6. Splenomegaly
7. Acute renal failure
8. Hemolytic anemia

Based on these complications enumerated above, M.A. experienced haemolytic anaemia as a complication of malaria. The anaemia was managed through blood transfusion and administration of syrup multivitamin.

2.1 Patient and family strengths

Strengths are tasks or actions that one can do well without any external support.

According to Hornby (2017), strengths are factors that contribute to a patient well-being.

The under mentioned strengths were observed on my client and family.

1. Patient's grandmother can verbalise that M.A have high body temperature.
2. Patient could tolerate fruit juice.
3. Patient could tolerate passive exercise.
4. Patient's coughing subsided with bed rest.
5. . Patient could tolerate oral fluid.
6. . Patient could have an uninterrupted sleep for 3 hours at night
7. Family verbalized the cause, management and prevention of the condition.

2.2 Patient and family health problems.

A problem is a list of documentation that provides a clear picture of any patient's issues that needs or requires attention.

According to Hornby (2017), a health problem is an unmet health need to which the patient responds in a variety of ways or is any stressful situation, which is physical, social or psychological on the patient, or family that requires nursing intervention and appropriate measures.

M. A had the following health problems:

1) (31/10/21) Patient' body was warm.
2) (31/10/21) Patient cannot eat.
3) (31/10/21) Patient was weak.
4) (31/10/21) Patient was coughing.
5) (31/10/21) Patient was vomiting.
6) (31/10/21) Patient cannot sleep.
7) (31/10/21) Patient's family had less knowledge on patient's condition and its management.

2.3 Nursing Diagnosis

According to Weller (2014), nursing diagnosis is a statement of a health care problem or the potential for one in the health status of a patient or client for which the nurse has to intervene and treat. Nursing diagnosis for M. A. is as follows:

1. (31/10/21) Thermoregulation imbalance (fever) related to presence of plasmodium toxins in the blood.
2. (31/10/21) Ineffective airway clearance related to mucus obstruction as evidenced by coughing.

3. (31/10/21) Fatigue related to low oxygen in the tissues as evidence by low haemoglobin level in the blood.
4. (31/10/21) Altered nutritional pattern (less than body requirement) related to loss of appetite.
5. (31/10/21) Risk for fluid and electrolyte imbalance related to vomiting.
6. (31/10/21) Altered sleeping pattern (insomnia) related to change of environment.
7. (31/10/21) Knowledge deficit (grandmother) related to predisposing factors, causes, signs and symptoms, management and prevention of malaria.

CHAPTER THREE
PLANNING FOR THE PATIENT AND FAMILY CARE

3.0 Introduction

Planning is the third stage of the nursing process in which the nurse and the patient together consider the goals to achieve in meeting the patient's identified actual or potential problems in daily life and produce an individual care plan. (Weller, 2019). This is the third component of the nursing process which involves setting objectives/outcome criteria that will help to solve the problems identified. It involves the use of the nursing care plan to set objectives for patient and family. The nursing care plan enables care to be continued and also interventions to be carried out to help the patient to be relieved of her problems. It is based on the potential and actual problems identified.

3.1 Objectives and outcome criteria for Patient/ Family Care.

The under listed objectives and outcome criteria were set to solve the health problems of M. A.

1. Patient's body temperature would be reduced from high to normal (36.2^0C -37.3^0C) within 24hours of hospitalization as evidenced by;
    a. The nurse checking and recording normal body temperature (36.3^0C – 37.3^0C) within 24hours
    b. Patient/family verbalising that she does not feel warm any more.
2. Patient will regain normal body comfort within 48 hours as evidenced by:
    a. The nurse observing patient sleeps without coughing.
    b. Patient's mother verbalizing that she has stopped coughing.

3 Client would be relieved of fatigue within 96 hours of hospitalization as evidenced by:

a. Nurse observing patient participating willingly in desired activities without tiredness.

b. Grandmother verbalizing that M.A does not get tired after playing with peers.

4. Client would regain her normal eating pattern within 48hour as evidenced by:

a. Nurse observing patient eat more than half of the usual amount of meal she is always served, that is about 70% of meal served

b. Patient/family verbalizing that child could eat well as she used to eat before her sickness.

5. Patient would maintain her normal fluid and electrolyte balance within 48hours as evidenced by;

a. Mother verbalizing that child skin is not dry.

b. Nurse observing that patient does not exhibit any sign of dehydration

6. Patient would regain her normal sleep pattern (at least 2 hours during the day and 6 to 8 hours at night) within 48 hours as evidenced by:

a. The nurse observing patient having uninterrupted sleep of not less than 2hours during day time.

b. Family reporting that child can sleep as she used to before the sickness.

7. Family will have adequate information about the causes, management and prevention of the condition within 6 hours as evidence by:

a. Family verbalizing basic understanding of the causes, management and prevention of the child's malaria.

b. Family giving feedback information on knowledge acquired to the nurse.

TABLE SIX: NURSING CARE PLAN FOR M. A. / FAMILY

DATE AND TIME	NURSING DIAGNOSIS	OBJECTIVE/ OUTCOME CRITERIA	NURSING ORDERS	NURSING INTERVENTION	DATE AND TIME	EVALUATION	SIGN
31/10/21 At 1:00pm	Thermoregulation imbalance (fever 38.7^0C) related to presence of plasmodium toxins in the blood.	Patient would have normal body temperature (36.2 ^{o}C-37.2^{o}C) within 24 hours as evidenced by: 1 The nurse recording body temperature within normal range (36.2 to 37.2). 2 Patient/family verbalizing that her body is no warmer to touch.	1 Reassure patient/ family of quality nursing care 2 Loosen tight and heavy clothing 3 Ensure adequate room ventilation 4 Tepid sponge patient when necessary 5 Serve cold drinks 6 Serve prescribed anti – pyretic and anti-malaria drug. example IV Artesunate /Paracetamol.	1 Patient/family was reassured. 2 Tight and heavy clothing was loosened 3 Adequate room ventilation was ensured by opening windows 4 Patient was tepid sponged whenever temperature was high 5 Cold drinks were served 6.IV Paracetamol and IV Atesunate were served as ordered.	01/11/21At 1:00pm	Goal was fully met as patient's temperature reduced to 37.1^{o}C	M.A.

TABLE SIX: NURSING CARE PLAN FOR M. A. / FAMILY CONTINUED

DATE AND TIME	NURSING DIAGNOSIS	OBJECTIVE/ OUTCOME CRITERIA	NURSING ORDERS	NURSING INTERVENTION	DATE AND TIME	EVALUATION	SIGN
31/10/21 At 1:30pm	Ineffective airway clearance related to mucus obstruction as evidence by productive coughing.	Patient will gain normal body comfort within 48 hours as evidenced by: 1. The nurse observing patient sleeps without coughing. 2. Patient's mother verbalizing that she has stopped coughing	1.Reassure patient /family of quality nursing care 2. Observe for side effect of medication. 3. Check vital signs. 4. Serve prescribes medication eg Antitussive 5. Position client's in a comfortable position 6.Ensure adequate hydration	1. Client's mother was reassured. 2. Side effect of medication was properly observed. 3. Client's respiration was checked and recorded regularly. 4. Prescribed medication was served 5. Client was positioned in a high fowler's position. 6.Adequate hydration was ensured	02/11/21 At 1:45pm	Goal was met fully as patient's mother said she has stopped coughing	M.A.

TABLE SIX: NURSING CARE PLAN FOR M. A. / FAMILY CONTINUED

DATE AND TIME	NURSING DIAGNOSIS	OBJECTIVE/ OUTCOME CRITERIA	NURSING ORDERS	NURSING INTERVENTION	DATE AND TIME	EVALUATION	SIGN
31/10/21 At 1:45pm	Fatigue related to low oxygen in the tissues as evidence by low haemoglobin level in the blood.	Patient would be relieved of fatigue within 96 hours of hospitalisation as evidenced by; 1. Nurse observing patient participating willingly in her desired activities without tiredness. 2. Grandmother verbalizing M.A does not get tired after playing with peers.	1. Reassure patient/family of quality nursing care 2. Assist client to carry out passive exercise. 3. Promote enough bed rest. 4. Ensure early ambulation. 5. Provide support for patient during activities. 6.Serve adequate nutritious diet	1. Client was reassured. 2. Client was assisted to carry out passive exercise. 3. Bed rest was promoted to relieve her from weakness. 4.Early ambulation was ensured 5. Support was given to client during activities. 6 Adequate nutritious diets were served.	04/11/21 At 9:15am	Goal fully met as client was able to carry out all activities unassisted.	M.A.

TABLE SIX: NURSING CARE PLAN FOR M. A. / FAMILY CONTINUED

DATE AND TIME	NURSING DIAGNOSIS	OBJECTIVE/ OUTCOME CRITERIA	NURSING ORDERS	NURSING INTERVENTION	DATE AND TIME	EVALUATION	SIGN
31/10/21 At 2:00pm	Altered nutritional pattern (less than body requirement) related to loss of appetite	Patient will regain her normal eating pattern (good appetite) within 72 hours as evidenced by; 1. The nurse observing that patient eats more than half of her meals served 2. Patient/family verbalizing that she is able to eat well.	1 Reassure patient/family of quality nursing care. 2 Ensure oral hygiene (mouth care) regularly. 3 Prepare and serve the client's favourite meal 4 Serve food in bits and at regular interval 5.Serve fruits after meals 6.Administer prescribed medications E.g Multivitamins	1 Patient/family was reassured. 2 Client's mouth was brushed twice daily and rinsed before and after each meal 3 Client's favourite meals were prepared and served 4 Food was served in bits and at regular intervals 5 Fruits such as oranges were served after each meal 6. Patient was served with syrup multivite.	03/10/21 At 2:20pm	Goal fully met as client could eat more than half of the food served.	M.A.

TABLE SIX: NURSING CARE PLAN FOR M. A. / FAMILY CONTINUED

DATE/ TIME	NURSING DIAGNOSIS	OBJECTIVE/ OUTCOME CRITERIA	NURSING ORDERS	NURSING INTERVENTION	DATE & TIME	EVALUATION	SIGN
31/10/21 At 2:10pm	Risk for fluid and electrolyte imbalance related to continues vomiting.	Patient would regain her fluid and electrolyte balance within 72 hours as evidence by; 1. Nurse observing normal skin turgor of the patient and weight restored. 2. Patient`s mother verbalizing that patient has stopped. vomiting	1. Reassure patient's mother. 2. Monitor child for signs and symptoms of hypovolemia including increase pulse and respiratory rate 3. Monitor child body weight as compared to base line weight 4 Assess skin turgor and mucous membran**e.** 5 Accurately measures intake and output chart 6 Encourage oral intake of fluids.	1 Patient's mother was reassured of competent nursing care. 2 Child's pulse rate and respiratory rate was observed to rule out hypovolemic shock. 3 Child was weighed daily, showing a stable weight as compared to the baseline. 4 Skin turgor and mucous membrane were assessed showing an improved skin turgor. 5 Intake and output chart was observed. 6 Oral fluids like orange juice were served.	03/11/21 At 4:00pm	Goal fully met as evidence by; 1. Nurse observed patient not vomiting and had good skin turgor 2. Patient's mother verbalized that patient has stop vomiting	M.A.

TABLE SIX: NURSING CARE PLAN FOR M. A. / FAMILY CONTINUED

DATE AND TIME	NURSING DIAGNOSIS	OBJECTIVE/ OUTCOME CRITERIA	NURSING ORDERS	NURSING INTERVENTION	DATE AND TIME	EVALUATION	SIGN
31/10/21 At 2:40pm	Altered sleeping pattern (insomnia) related to change of environment	Patient would be able to sleep at least 2-3 hours during the day and 6-8 hours at night within 48 hours as evidence by 1. Patient /family verbalizing that she had an uninterrupted sleep throughout the night. 2. Nurse observing that patient had uninterrupted sleep.	1. Group and carry out nursing activities at a go to promote sleep. 2.Make comfortable bed for patient. 3.Ensure a noise free environment. 4.Provide a dim light for patient. 5. Avoid patient from eaten or drinking too much when going to bed.	1. Due medications were administered and vital signs assessed at the same time. 2. A comfortable bed was made for client. 3. A noise free environment was ensured. 4. Dim light was provided. 5. Patient was ensured not to eat or drink too much when going to bed.	02/11/21 At 4:15pm	Goal was fully met as patient was able to sleep for 2hour during the day and 7 hours at night.	M.A.

TABLE SIX: NURSING CARE PLAN FOR M. A. / FAMILY CONTINUED

DATE AND TIME	NURSING DIAGNOSIS	OBJECTIVE/ OUTCOME CRITERIA	NURSING ORDERS	NURSING INTERVENTION	DATE AND TIME	EVALUATION	SIGN
1/11/21 At 8:45am	Knowledge deficit (grandmother) related to predisposing factors, causes, signs and symptoms, management, and prevention of the malaria.	Patient's family would have adequate information about the causes, management, and prevention of the condition within 6 hours as evidenced by: 1.Patient's mother verbalizing a basic understanding about the cause, management and prevention of the disease condition (severe aneamia) 2. Patient and family giving feedback information on knowledge acquired to the nurse.	1. Reassure patient and family and establish rapport with them. 2. Assess their knowledge on the condition 3. Inform patient's family about ways of preventing the spread of the infection and some management of the condition. 4. Allow patient to ask questions for clarification 5.Educate patient/family on medication and its side effects 6.Assess patient/family motivation and willingness in learning.	1. Patient and family were reassured and rapport established with them. 2. Patient and family were asked about some of the causes of the condition 3. Patient's family were informed that hand washing and observing good personal hygiene can help prevent the spread of the infection. 4.Patient's family asked some of the risk factors for the condition and he was answered correctly 5.Patient/family were educated on medications and its side effects 6. Patient/family willingness and motivation in learning were assessed.	31/10/21 At 2:40pm	1. Goal fully met as patient verbalized basic understanding of the causes, management and prevention of the condition. 2. Patient and family giving feedback information on knowledge acquired to the nurse	M.A.

CHAPTER FOUR
IMPLEMENTATING PATIENT/FAMILY CARE PLAN

4.0 Introduction

Implementation is the fourth stage in the nursing process. It is the process of putting a decision or plan into effect. It is the actual nursing care given to the patient and family. It aims at making patient comfortable, avoiding complications and promoting early recovery.

4.1 Summary of Actual nursing Care Rendered to Patient/ Family

The actual nursing care rendered to patient and her family started on the day of admission, 31st October, 2021 to the day care was terminated (10th November, 2021). The management of patient and her family was planned to meet their physiological, emotional, spiritual and physical needs. For purpose of organization, the actual care rendered to M.A. and family has been discussed on daily basis.

Day of Admission (31st October, 2021).

On 31st October 2021, at 1:00 pm, M. A, with the grandmother, accompanied by a nurse, walked into the Paediatric Ward of St. Theresa's hospital for admission. She was admitted by PA Daniel with the diagnosis of Haemolytic Anaemia secondary to Severe Malaria. I introduced myself, and the other staffs on duty to her relative. The nurse handed over her folder to me. I confirmed the particulars in the folder with those her relative told me. She was placed in a well prepared simple unoccupied bed

Vital signs were checked recorded as shown in the appendix.

At 1:00pm Patient had high body temperature. Thermoregulation imbalance (fever 38.7^{O}C) related to presence of plasmodium toxins in the blood was the diagnosis made. An objective was set to restore patient's body temperature from 38.7^{0}C to normal (36.2^{0}C – 37.2^{0}C) within 24 hours. Patient/family were reassured of quality nursing care, she was tepid sponged, nearby windows opened to ensure adequate ventilation. Also, cold drinks such as cold orange juice was served to patient. Extra pullovers and bed linen were removed. Prescribed Anti- pyretic and Anti-malaria drugs such as IV Paracetamol and IV

Artesunate were served respectively. Patient's body temperature was checked 5 minutes later after these interventions were carried out and read 37.1^{o}C. I therefore educated the mother on the need to inform the nurses of fever for its control.

At 1:30pm after admission, patient's mother complained of child coughing which makes her uncomfortable. Ineffective airway clearance related to mucus obstruction as evidenced by productive coughing, was the diagnosis made. An objective was set to ensure that; patient is relieved of cough within 48 hours. Patient/family were reassured of quality nursing care, adequate hydration was ensured by encouraging patient to take in more oral fluids such orange juice, water and pineapple juice to help loosen the mucus for easily expectation. I also encouraged patient to assume a comfortable position. Then also prescribed medications such as cough suppressant were served, side effects of medications were observed regularly and vital signs were checked and recorded regularly as indicated in the appendix.

At 1:45pm M.A. was weak as I observed; the nursing diagnosis was Fatigue related to low oxygen in the tissues as evidenced by low haemoglobin level in the blood. An objective was set to relieve patient's fatigue within 96 hours of hospitalization. Patient's bed was made free from creases and crumps to make her feel comfortable. Instruction was made to restrict visitors, radio and television sets were lowered to make her feel relaxed, M.A.'s grandmother was educated on the need for granddaughter to have enough bed rest, I ensured early ambulatory and provided support during activity, then also a balanced diet was served. Passive exercise was ensured to stimulate joint and muscular activities.

Moreover, on the same day of admission at 2:00pm, grandmother complained that M.A could not eat well. The nursing diagnosis made was Altered nutritional pattern (less than body requirement) related to loss of appetite. An objective set was to help maintain patient's nutritional status within 72 hours. Patient was assisted to brush her teeth before and after eaten. Other nursing interventions I carried out

on my client were that, I planned diet with patient's grandmother and served her favourite meal (Rice and Stew) in bits at regular intervals and when patient wanted to eat, after every meal fruit juice was served to nourish her with vitamins. Then also, prescribed medications such Multivitamin syrup were administered to the client to improve her appetite level.

In addition, patient was vomiting so nursing diagnosis "Risk for fluid and electrolyte imbalance related to continues vomiting" was made around 2:10pm and an objective was set to help regain her fluid and electrolyte balance within 48 hours. The following nursing activities were carried out to help maintain her hydration status; Patient's grandmother was reassured of competent nursing care, child's pulse rate and respiratory rate were observed to rule out hypovolemic shock, child was weighed daily showing a stable weight as compared to the baseline, skin turgor and mucous membrane were assessed showing an improved skin turgor, intake and output chart was strictly observed and oral fluids also served. Furthermore, on that very day of admission at 2:25pm, mother gave a complained of child not being able to sleep. The nursing diagnosis made was: Altered sleeping pattern (insomnia) related to change of environment. An objective was set to ensure that patient sleeps at least 2 hours during the day and 6-8 hours at night within 48 hours. Warm bath was administered to M.A before going to bed, a comfortable bed was made for her with television sets volume lowered to ensure noise free environment, I ensured that she slept under dim light to promote sleep.

At 2:30pm, patient was transfused with 400mls of whole blood. Blood type was B with Rhesus factor positive. Blood with unit number 0981, date cross-matched was 31/10/21 and expiry date 30/11/21 was setup. and IV laxis 10mg stat was administered as pre-medication to prevent circulatory overload. Vital signs were checked before transfusion commenced and recorded as:

- Temperature - 37.2^{o}C
- Pulse - 112bpm

- Respiration - 34cpm

The grandmother was educated about possible transfusion reactions and the need to report if any. Consent was duly explained and signed by the grandmother before the blood was setup

At 5:45pm, the blood transfusion of 400mls with unit number 0981 was completed successfully. On examination, urticaria rashes was observed. IV hydrocortisone 22mg was administered as prescribed and kept under close monitoring, grandmother was reassured of speedy recovery. Vital signs checked after the transfusion and was recorded as;

- Temperature - 37.6^{o}C
- Pulse - 126bpm
- Respiration - 28cpm

At 6:15pm, Patient was given rice and tomatoes stew in the evening as supper and due medications were served. Patient's mouth was cared for after eaten. At 6:45pm, patient had a warm bath and was observed urticaria rashes have subsided, a comfortable simple bed was made for her to sleep around 8:00pm. At 10:00pm patient's vital signs were checked and recorded as reflected in the appendix and was made comfortable in bed.

Second Day of Admission (1st November, 2021)

On this day, M.A woke up at 5:30am. She had her bath and mouth care done by her grandmother. Her bed was laid and the locker and bed side table cleaned. Patient's grandmother confirmed that her daughter's body temperature was better throughout the night. The grandmother was commended for her efforts. She was educated that good personal hygiene promotes good health.

At 6:00am her vital signs were checked and recorded as shown in the appendix.

At 7: 30am, her breakfast of 250mls of rice porridge with two slices of bread was served as her breakfast. She consumed 100mls of the porridge and half of the slice of bread. Her medications were administered.

At 8:15am, she was reviewed by the doctor and the following were planned: To do post transfusion haemoglobin level estimation the next day, repeat peripheral smear study for malarial parasites after last dose of IV Artesunate given, continue 4hourly vital signs monitoring, counsel mother on Insecticide Treated Nets. The following drugs were also added to her medications; Syrup Artemether Lumefantrine 20/120mg bd x 3, IV hydrocortisone 25mg and lesporin cream to apply on skin for urticaria rashes patient had because of the transfusion.

At 8:45 am, the grandmother was engaged in an interaction and it was realized that she had less knowledge on M.A.'s condition (Hemolytic Aneamia secondary to severe malaria). The nursing diagnosis was; Knowledge deficit (grandmother) related to predisposing factors, causes, signs and symptoms, management and prevention of malaria. An objective was set to help her gain enough information on the condition within 6 hours. Grandmother's knowledge, motivation and willingness to learn were assessed and educated her on the predisposing, causes, signs and symptoms and prevention of malaria, since that was the cause of haemolytic anaemia. Grandmother was encouraged to ask any questions and misconceptions surrounding child's condition (Hemolytic Aneamia secondary to severe malaria). Appropriate answers were given tactfully to allay fears. Grandmother was given time to give feedback on the education given. She provided correct answers on the questions that were being asked indicating her understanding of the child's condition. Around 1:00pm, evaluation was made on the objective which was set to restore patient's body temperature to normal range ($36.2^{o}C$ – $37.2^{o}C$) within 24 hours. Goal was fully met as patient's temperature dropped from $38.7^{o}C$ to normal body temperature of $36.8^{o}C$ and patient's mother verbalizing that M.A. fever has subsided. At 2:00pm patient vital signs were checked and recorded as reflected in the appendix. At 2:00pm evaluation was made on the objective which was set to help patient's grandmother gain enough information on the condition within 6 hours.

Goal was fully met as grandmother's verbalized basic understanding of the predisposing, causes, signs and symptoms and prevention of granddaughter's condition and giving feedback information on knowledge acquired from the nurse. Interventions to help patient gain normal body comfort, to relief fatigue, restore patient's nutritional pattern to normal, to maintain fluid and electrolyte balance and restore normal sleeping pattern were continued in order to achieve the objectives.

At 6:00pm patient had her super of plain rice and kontomire stew and prescribed medications were served. Patient had a warm bath and oral hygiene at exactly 7:00pm. She at slept 7:33pm.

Third Day of Admission (2nd November, 2021)

On this day, M.A. woke up around 5:50am and was assisted in brushing her teeth, after that she emptied her bowel and had her bath. At 6:20am her vital signs were checked and recorded as shown in the appendix.

Patient was served with 200mls of tea and a slice of bread which she consumed all. Mother was very happy and verbalized that M.A could eat well. Her morning medications were served as prescribed.

At 9:30am during ward rounds, M.A was reviewed by the doctor and was reviewed by the doctor and post haemoglobin level was 6.6g/dl. The doctor requested that another 220mls of whole blood is to be transfused and to be given IV laxis 10mg as premedication. No changes were made in her medications and she is to continue all treatments. Child's blood sample was taken and sent to the laboratory for grouping and cross-matching.

At 12:30pm she took Rice with tomatoes stew for lunch and due medications were administered. She was given toys to play with.

Also, at 1:45pm an evaluation was made on the objective which was set on the day of admission to relieve child from coughing within 48 hours was evaluated and goal was fully met as evidenced by nurse observing patient sleeps without coughing and grandmother verbalizing that she had stopped coughing.

Grandmother was educated about possible transfusion reactions and the need to report if any. Consent was duly explained and signed by the grandmother.

At 2:15pm, patient was transfused with 220mls of whole blood. Blood type was B with Rhesus factor positive. Blood unit number 0963 date cross-matched 02/11/21 and expiry date 01/12/21 was setup and IV laxis 10mg was administered as premedication. Vital signs checked before transfusion was recorded as:

- Temperature - 36.8^{o}C
- Pulse - 126bpm
- Respiration - 26cpm

Then also at 4:00pm an evaluation was made on the objective which was set on the day of admission to help regain child's fluid and electrolyte balance within 48 hours was evaluated and goal was fully met as evidenced by nurse visualized that patient did not exhibit any sign of dehydration such as sunken eyes and rapid pulse.

Interventions to help patient relief fatigue and restore patient's nutritional pattern to normal were continued in order to achieve the objectives.

Around 4:15pm, I also engaged the grandmother in an interaction and made evaluation on the objective set to restore patient sleeping pattern. A goal was fully met as I observed patient sleeping for 2 hours at the day and 8 hours in the night uninterrupted.

At 5:20pm, blood transfusion of 220ml with unit number 0963 was completed successfully without any transfusion reactions. Vital signs checked after transfusion was recorded as:

- Temperature - 36.5^{o}C
- Pulse - 126bpm

- Respiration - 28cpm

At 6:00pm, she had fufu and light soup for supper, took her due medications, proper personal hygiene was ensured. She was made comfortable in bed and encouraged to watch the ward television to relax her and slept around 8:10pm. At exactly 10:00pm patient's vital signs were checked and recorded as in the appendix.

Fourth Day of Admission (3rd November, 2021).

On the fourth day of admission, patient woke up around 5:45am. Patient's grandmother assisted her in brushing her teeth, had her bath and emptied her bowel. At 6:00am her vital signs were checked and recorded as indicated in the appendix.

Patient was served with 250ml of porridge and Koose as her breakfast. She was able to consume all. Patient was served with Ampesi and garden eggs Stew with Fish as lunch. Patient was allowed to play with age mates after afternoon medication served. At 2:00pm patient's vital signs were checked and recorded as indicated in the appendix.

The objective that was set to help patient regain her nutritional pattern within 72 hours was evaluated at 2:20pm. Goal was fully met as patient was able to eat 250mls of porridge served and grandmother verbalized that patient was able to eat well. I therefore informed the grandmother that I would be visiting their home that very day while M.A was still on admission; my purpose of going was told. Interventions to help patient relief fatigue was continued in order to achieve the objectives.

During doctor's round, she looked cheerful. She was asked to continue with her treatment and was ordered to do full blood count. Blood sample was sent to the laboratory. Patient was given adequate nutrition by feeding her well with well-balanced diet to boost her immune system. After Lunch with Rice with groundnut soup, prescribed medications were served, patient was made comfortable in bed. Around 4:30pm, patient was seen playing with grandmother.

At 5:00pm laboratory results revealed HB level of 8.6g/dl. Patient took supper with fufu with light soup with medications served. Proper hygiene was ensured and was made comfortable in bed at 8:34pm and she slept.

Fifth Day of Admission (Day of Discharge) 4th November, 2021

On the 4th day of November, 2021, patient woke up around 5:30am. Patient was assisted to bath and brush her teeth by her grandmother.

Her vital signs were checked and recorded as shown in the appendix.

Patient was served with 300ml of 'winimix' and a slice of bread as her breakfast.

At 9:45pm an evaluation was made on the objective set to relieve fatigue within 96 hours of hospitalization. A goal was fully met where patient/family verbalized that M.A. had stop coughing, nurse observing patient play with peers.

At about 11:00am, during ward rounds and upon review by the medical team, she was discharged to continue treatment at home. Vital signs were checked and recorded as indicated in the appendix.

They were informed to come for review on the 11th of November, 2021. Opportunity was taken to educate the patient's grandmother on how to administer her drugs and the need to continue the drug treatment after discharge was made known to her.

Patient's mother was asked to settle child's bill since not all the treatment were covered by the National Health Insurance Scheme (NHIS). Her grandmother was also educated on the importance of good nutrition and need to increase the protein content of her child's food. The need for review was also explained and I also emphasized on the 11th of November, 2021. I also reminded the grandmother on the education given on the causes, predisposing factors, signs and symptoms and its prevention about child's condition.

Emphasis was again placed on good environmental sanitation to avoid breeding of mosquitoes, example proper refuse disposal, maintaining proper drainage system and weeding of the backyard. They were also advised on the need to sleep under treated mosquito net, use mosquito coil and repellent.

She was Discharged from the Admission and Discharge book and her particulars were entered in the daily ward state. Patient's cannula was removed and the site was cleaned. I helped the grandmother pack out their belonging into a bag and also dressed her up. They thanked the nurses and doctors on the ward. I promised to visit them at their home to know their state of health. M.A. and her grandmother were seen off. The bed linen used by her was removed and the bed cleaned with Bleach solutions. The bed was remade with clean linen ready for the next admission.

4.2 Preparation of Patient/Family for Discharge and Rehabilitation

Preparation of patient/family for discharge started on the day of admission when they were told that the hospital is a temporal place for them and that they would be discharged if patient's health is restored. The aim was to make them comfortable and understand that the hospital was a temporary place for health care and patient would be discharged home to continue treatment when her condition improves. Patient and her grandmother were educated on the causes, signs and symptoms, treatment and possible complications of malaria and how it led to hemolytic aneamia. They were educated on the need for good personal hygiene and good nutrition. Patient and her grandmother were advised on the importance of review and to keep to the said date (11/11/21) and also to report promptly to the hospital for proper management if any change occurs in patient's condition before the review date.

Patient was discharged by the Medical Officer; Dr. Owusu during ward rounds on 4th of November, 2021. Patient's mother was informed of patient's discharge. Payment of patient's hospital bill was done with the National Health Insurance Scheme and money since not all treatments were covered under National Health Insurance Scheme.

They were helped to pack their belongings and patient's remaining drugs were given to mother and she was educated on the need to observe the dosage, time, route and importance of taking the prescribed drugs. She thanked the staffs and bade them goodbye. Patient and her mother were then escorted to the hospital's gate and they boarded a taxi home.

The discharge procedure was documented in the Admission and Discharge book and in the daily ward state as well as in the nurse's notes.

4.3 Follow ups/Reviews/Home visits/Continuity of Care

Home visit is the assessment made by the nurse during the patient/family care study to assess the home environment. Its purpose was to assess the home environment, in order to determine the patient's needs for any adaptations to maintain an independent living and find solutions to contributing factors that caused patient's illness.

First Home Visit (3rd November, 2021)

My first home visit was made to Fakwasi, a small village which is about 2 hours drive from Nkoranza in the Bono East Region on the above stated date while M.A. was still on admission. The aim was basically to find out about the environment in which the family live, and also to help identify the possible health problems in the home environment and to establish a link between the problems of my patient's condition and then to help remedy the situation through health education and also validate the data collected.

I got to Fakwasi station around 8:15am after attending to my patient on the ward. Upon my arrival, I was told the car would be leaving around 8:45am so I have to wait awhile. About 30 minutes time the car became full and we set off to Fakwasi around 9:15am. The road to Fakwasi was very bad and full of potholes. The road is not tiled and very dusty. Around 11:25am we arrived at Fakwasi. I had no difficulty finding the house because all the information received from the grandmother were true. My patient's family lives about three blocks from the road side. My patient's aunties, uncles and most of the relatives were in the house when I got there. Greetings were exchanged, a seat was offered as well as a glass of water, then they welcomed me and asked for my mission. I told them that I have come to visit them in order to find out any information that can help in the management of M.A.

On my observation, I realized that Fakwasi is small village with a population of about 300 people, which most of them are children and the aged. Most of their buildings were mud houses and their source of

income was mainly through farming activities. There was no health facility in the village, they mostly use herbs when one was sick and sometimes seek healthcare at Dromakese Health Centre when it becomes worse.

My assessment of their house revealed that there were four rooms in the house. M.A. together with her grandmother occupies one room. I also observed that there were no treated insecticide net in their room, so I used the opportunity to educate them on the need to use it. The bath house is a temporal detached building behind the house with a drain into the main gutter. They share a common kitchen. The main source of fuel for cooking is firewood and charcoal which produced a lot of smoke into the rooms. I took the opportunity to educate them to open their windows for fresh air. The main source of water is a borehole not far from their house and rain water which they stored in barrels without fitting lids. I educated them on the need to cover the barrel, regular cleaning of the barrel and to boil rain water before drinking it in order to avoid infections produced by microoganisms.

I educated them on the need for personal and environmental hygiene such as washing their hands with soap and water after visiting the toilet and before meals, trimming of finger and toe nails, the need to bath at least twice a day, washing cooking utensils after meals to prevent flies and not leaving them overnight till the next morning, the need to protect food adequately from flies and dusts, clearing of bushes around the house and proper disposal of refuse as well as the disease condition, its causes, mode of transmission, signs and symptoms and prevention, the need to ensure adequate ventilation, visiting the hospital during pregnancy and established the link between them to aid their understanding. They listened carefully and even asked questions. I answered them tactfully and they were very happy. Around 4:45pm I told them my intention of leaving and told them my next visit. I bade them goodbye and left the house around 7:10pm.

Review (11th November, 2021)

Madam J.S. and her granddaughter M.A. came to the St. Theresa's Hospital, Nkoranza for review on the 11th November, 2021. Early in the morning, I called her grandmother to remind her and she told me

that she was aware and they were preparing to come. On their arrival, I went with patient and her grandmother to collect her folder from the records. Upon my interaction with patient, I observed that her condition had really improved.

Patient and her grandmother were escorted to consulting room at under five of the out-patient department and upon assessment by the doctor he confirmed the condition had improved. Her vital signs were checked and were within normal ranges, thus,

Temperature: 36. 2^{o}C

Pulse : 103bpm

Respiration : 24cpm

No medication was given to them, they thanked me, I bade them goodbye and they took a taxi from the hospital gate to the station.

Second Home Visit (18th November, 2021)

The importance of the second home visit was to find out how patients and relatives were able to adjust and adapt to the education given and to see how patient was recovering after discharge.

Two weeks after patient's discharge, around 10:30am, I paid M.A. and her family a visit at their home. Upon entering the house, M.A. was seen playing with some children in the house. They were very happy to see me. A seat and a glass of water were offered. Her grandmother sent for other relatives who were in their rooms doing one thing or the other. I used that opportunity to assess the environment. When all family members were seated, I asked of their present condition, they said they were very healthy by God's grace. I told them I came to find out how M.A was responding to the care given in the house, ascertain whether the education given previously had been adhered to and also to emphasize on the need to keep their environment clean, and moreover, my intention of handing over care officially to the family.

After assessing the surrounding, I congratulated them for keeping to the health education given. The barrel was well cleaned and fittingly covered with a lid. The backyard had also been cleared. Emphasis was also made on the need to give M.A. a balanced diet and also encourage her to have enough rest during the day. I also asked them if they have any concern to express in the care they were giving to M.A. Since there were nothing more, I told them my intention of leaving and told them of my next visit. I bade them goodbye and left the house around 3:10pm.

Third Home Visit (10th December, 2021)

On the said date, I went for my third and last home visit. This was to see how she was doing after her second home visit and hand over care to the family. I set off at 8:45am and arrived at around 11:25am. Everybody was doing well. Since this was my last visit, I took my time to ask for feedback on education given and highlighted on the various health educations that I had previously given and also assessed M.A.'s conjunctiva for pallor. I also re-enforced that they should always report to the nearby clinic or hospital whenever they felt sick and they should not practice self-medication. They were grateful and promised to adhere to the education. She was handed over officially to the family to continue with the care since there was no health facility in the community.

I thanked them for the opportunity offered me to take her and the family for the care study. With this I told them that I may not be able to visit them frequently as before, but assured them of friendly visits. They expressed their sincere appreciation for the care I rendered to M.A. throughout hospitalization and after discharge and I also showed my gratitude and I asked for permission to leave and escorted me to the road side where I took a taxi to Nkoranza around 3:35pm.

CHAPTER FIVE
EVALUATION OF CARE RENDERED TO PATIENT AND FAMILY

5.0 Introduction

Evaluation is the final stage of the nursing process and measures patient and family's response to the nursing interventions and the extent to which they were achieved.

5.1 Statement of Evaluation

1. Patient's body temperature reduced to normal (36.2^{o}C – 37.2^{o}C) within 24 hours.

Thermoregulation imbalance (fever 38.7^{O}C) related to presence of plasmodium toxins in the blood was made on the admission day (31/10/21) at 1:00pm. An objective was set to help restore patient's body temperature to normal (36.2^{0}C – 37.2^{0}C) within 24hours. Patient/family was reassured of quality nursing care, she was tepid sponged, and nearby windows opened to ensure adequate ventilation. Also, cold drinks such as cold water and orange juice were served to patient. Extra pullovers and bed linen were removed. Prescribed Anti- pyretic and Anti-malaria drugs such as IV Paracetamol and Artesunate were served respectively. Patient body's temperature was checked every 5 minutes while the interventions were carrying out and later read 37.1^{o}C as normal. I therefore educated the mother on the need to inform health staff of fever for its control.

Evaluation was made on the 1st of November, 2021, at 3:00pm. The objective was fully met as temperature was checked and recorded as 37.1^{o}C and grandmother verbalized that temperature had subsided.

2. Patient was relief of coughing within 48 hours

On 31st November, 2021 at 1:30pm, it was realised patient had ineffective airway related to mucosal obstruction as evidenced by coughing. Some objectives were set to relieve patient's cough within 48 hours of hospitalization. Vital signs were checked and recorded as shown in the appendix.

Patient was reassured of quality nursing care. Patient was encouraged to sleep in comfortable position, prescribed medication was served and side effects of medication observed accurately. On 2nd

November, 2021, at 1:45pm goal was fully met as patient's grandmother verbalized that M.A. had stopped coughing.

3. Patient was relieved of fatigue within 96 hours of hospitalization.

Patient was weak during assessment on admission 31st November, 2021 around 1:45pm. She could not perform activities like playing and feeding herself as she used to. Objective was set to enable patient perform desired activities without tiredness within 96 hours. Patient and her mother were reassured that measures were being put in place to enable her perform some activities without tiredness. Patient's time of activity and rest period was planned to enable her have enough rest. Patient's bed was made free from creases and crumps. visitors were restricted from entering the ward at odd times, radio and television set were all lowered to make patient feel relaxed and have a sound sleep. Patient was engaged in passive exercises by assisting her to move her hands and legs in bed and to walk in the ward and was also allowed to play with her peers at the ward and was rewarded for her efforts. Prescribed anti-malarial such as IV Artesunate was served to patient. Goal was fully met on 4th November, 2021 at 9:45am, as patient was able to sit out of bed and walk and also playing around.

4. Patient regained her Nutritional Status within 72 hours

On admission (31/10/21) at 2:00pm, patient had loss of appetite. An objective was set to maintain her nutritional status. Patient and her mother were reassured that measures were being put in place to help patient gain and maintain her normal nutritional requirement. Patient's oral hygiene was maintained by cleaning the mouth with tooth paste and toothbrush twice daily with her mouth rinsed after feed. Patient and her relatives were involved in planning her diet and much considerations were taken into her likes and dislikes, she was encouraged to take in oral fluid, water and fruits drinks, meals were served attractively in bits by setting her trays nicely and maintaining a clean environment to stimulate appetite, patient and her mother were educated on the importance of maintaining their nutritional status by taking in adequate quantity such as carbohydrate, protein, vitamins and mineral salt. Goal was fully met on 3rd

November, 2021 at 2:20pm as patient was able to eat 300ml of liquid food served and mother verbalizing that patient was able eat well.

5. Patient regained her normal fluid and electrolyte balance within 48 hours.

On the 31st of October, 2021 at 2:10pm, patient was vomiting, so a nursing diagnosis "fluid and electrolyte imbalance related to continues vomiting" was set. An objective was set to help patient restore his normal fluid volume within 72 hours. Nursing interventions that was put in place includes; Child was strictly monitored for signs and symptoms of hypovolemia (such as temperature, pulse and respiration, child was weighed daily with reference to the base line weight, skin turgor and mucous membrane were assessed, intake and output chart was observed, oral intake of fluids encouraged. On the 2nd of November, 2021at 4:00pm an objective set to help patient restore to her normal fluid volume was fully met and nurse observed that patient had stopped vomiting and had a good skin turgor. And the patient's grandmother also verbalized that patient hasd stopped vomiting.

6. Patient maintained a normal sleeping pattern within 48 hours

On the 31st of November, 2021around 2:40pm patient had altered sleeping pattern related to change of environment. Objective was set to maintain normal sleeping pattern within 48 hours. Patient's grandmother was reassured that measures were being put in place to help patient sleeps normally, patient was giving a warm bath always before going to bed., a comfortable bed was made for the patient, noise free environment was ensured. Patient's tight clothing was removed to ensure smooth respiration and circulation, visitors were restricted. On 2nd November, 2021, at 4:15pm, evaluation was made on the said objectives and goals were fully met as nurse observed that patient sleeps well 2 hours in the day and 6-8 hours at night uninterrupted and mother verbalized that patient can sleep well.

7. Mother gained knowledge on Patient's condition within 6 hours.

On 1st of November, 2021 around 8:45am. It was realized grandmother had knowledge deficit related to the predisposing factors, causes, signs and symptoms, management and prevention of malaria and how it led to Hemolytic Anemia. An objective was set to enable patient and family have adequate

information on the predisposing factors, causes, signs and symptoms, managements and prevention of child's condition within 6 hours of hospitalization. Patient and her mother were reassured that the condition, its causes, prevention and management will be explained to them in detail. This was done to gain their co-operation. Grandmother's knowledge, motivation and willingness in learning were assessed. Patients' grandmother was educated on the causes, signs, symptoms, diagnosis, treatment and prevention of malaria secondary to Haemolytic Anaemia. Patient and her mother were encouraged to ask any question and misconceptions surrounding child's condition. Appropriate answers were given frankly and tactfully to allay fear. Patient's grandmother was given time to give feedback on the education given. She provided correct answers indicating her understanding of the condition. Patient and her mother were educated on the dosage, route, time, therapeutic side effects of their management drug. Evaluation was made on 1st November, 2021, at 2:40pm as family was able to verbalize the causes, management and prevention of the condition and family co-operated in the management of the patient.

5.2 Amendment of Nursing Care Plan for Partially Met or Unmet Outcome Criteria.

Upon careful evaluation of the nursing care rendered to M.A. and her family, our goals and objectives set were fully met. Therefore, there was no need for amendment of any of the objectives set during the care of the patient.

5.3 Termination of Care

Every nurse-patient relationship at the hospital needs to be terminated. However, this is a very difficult step to take after a good rapport has been established. The causes, signs, symptoms and prevention of Haemolytic Anaemia were explained to the patient's family. They were also educated on the importance of good nutrition and use Insecticide Treated Net.

I educated them on the need to complete the rest of the treatment regimen they were given in order to prevent relapse. Education on environmental and personal hygiene and its importance was given to the patient and family.

Finally, I thanked M.A and her family members for their support and co-operation throughout the care and having allowed herself to be used for the care study. I informed them about the need to terminate the care since M.A was very strong and healthy. I entreated them to report to the nearest health facility in their community and report back to the hospital whenever any ailment or disorder occurs.

I reassured M.A and her family of my assistance within my capacity any time they needed my help. I promised to visit them any time I had the opportunity. I thanked them sincerely for their co-operation and left around 3:35pm.

CHAPTER SIX
SUMMARY AND CONCLUSIONS

6.0 Introduction

This is the last step of the patient/family care study which entails the student's personal appreciation of the therapeutic relationship with the patient as well as the use of the nursing process.

6.1 Summary

M.A, a 2years old child was admitted to the Pediatric unit of St. Theresa's Hospital, Nkoranza on the 31st of October, 2021. Patient was diagnosed of haemolytic anaemia secondary to severe malaria. She spent 4 days on the ward.

On admission, she presented the following: fever, weakness, poor appetite, vomiting, difficult sleeping and coughing. Hence the various laboratory helped to confirm the diagnosis;

1. Blood for malaria parasite.
2. Blood for full blood count such as, haemoglobin level, white blood cells count, red blood cells count.
3. Blood for sickling test.
4. Blood for G6PD.
5. Grouping and cross matching
6. Blood for typhoid test

The following treatment plans were written in her folder:

1. Intravenous Artesunate 33mg 0, 12, 24 hours.
2. Intravenous Metronidazole 83mg tds x 48 hours.
3. Syrup Viscus D 5mls tid x 7days.
4. Syrup multivitamin 5mls x 7days
5. Tab Zinc 20mg daily x 10.

6. Rectal diazepam 2.5mg
7. Syrup Paracetamol 5mls tds x 5 days.
8. Intravenous laxis 11mg as premedication.
9. Intravenous fluid Ringers lactate 500mls.
10. 4.3L Dextrose in 1/5 normal saline 250mls
11. Hemotransfusion of 400mls and 220mls whole blood.
12. Syrup A/L 20/120mg bd x 3
13. IV hydrocortisone 25mg
14. Lexsporin cream twice daily

Patient's grandmother was educated on Haemolytic Anaemia its cause and its management. Patient's grandmother was also assisted in maintaining patient's personal hygiene (care of the mouth, hair, toe and finger nails and skin). Rest and sleep, nutrition, clothing and exercises were also ensured and patient's grandmother was encouraged to continue at home after discharge. I made three home visits to her and her family; one before discharge and two after discharged.

On the 11th of November, 2021, patient and her grandmother reported for review as scheduled. Moreover, it was also to find out if patient's grandmother is carrying out the advice and all the education given to improve patient and family's health and standard of living.

The care of M.A. and her family were terminated on the 10th December, 2021, during the third home visit when patient had fully recovered.

6.2 Conclusion

The study has equipped me with knowledge on how to care for a patient as an individual. Through this study, I have been able to put into practice actual and holistic nursing care as has been learnt theoretically. The study provided a therapeutic environment for nursing patient as an individual and has promoted a good nurse-patient (family) relationship as well as broadened my knowledge on how Severe Malaria can lead to Haemolytic Anaemia its prevention, management and treatment. It has also helped

me to practice my skills acquired in the classroom theoretically. It has deepened my relationship with patients, families and the people the given community as a whole.

It is my recommendation that all students are given the opportunity to embark on the patient/family care study to implement the nursing process in order to render individualized comprehensive care to patients/families.

In brief, I really enjoyed every bit of writing this script despite the challenges I encountered.

APPENDIX

The table below shows the vital signs and weight checked and recorded. .

Table 7: VITAL SIGNS/WEIGHT

DATE	TIME	TEMPERATURE (ºC)	PULSE (BPM)	RESPIRATION (CPM)	DAILY WEIGHT (KG)
31/10/21	1:00pm	38.3	134	26	12.0
	2:30pm	37.2	139	34	
	5:45pm	7.6	126	28	
	10:00pm	38.0	128	31	
01/11/21	6:00am	37.2	92	23	12.2
	10:00am	37.3	129	32	
	2:00pm	37.6	102	26	
	6:00pm	37.3	121	24	
	I0:00pm	37.4	124	25	
02/11/21	6:20am	37.4	94	22	12.9
	10:am	36.6	114	34	
	2:15pm	36.8	126	26	
	5:20pm	36.5	126	28	
	6:15pm	36.6	123	25	
	I0:00pm	36.5	121	27	
03/11/21	6:00am	36.7	108	24	13.3
	10:am	36.2	104	31	
	2:00pm	36.3	122	26	
	6:00pm	36.4	99	24	
	I0:00pm	36.1	106	25	

04/11/21	6:00am 9:25am	36.5 36.1	102 99	24 24	13.2
11/11/21	10:00am	36.2	103	24	13.4

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Others

Patient folder number: 007801/21 St. Theresa's Hospital, Nkoranza.

SIGNATORIES

1. **THE STUDENT NURSE**

NAME: MARY ADJEI

SIGNATURE: .....

DATE: ....3RD OCTOBER, 2022.....

2. **NURSE IN-CHARGE OF PEDIATRIC WARD, ST. THERESA'S HOSPITAL, NKORANZA**

NAME: MISS ESTHER SERWAA WIREKO

SIGNATURE: .....

DATE: ....04/10/2022.....

3. **THE SUPERVISOR, HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE, BEREKUM**

NAME: MR. ERIC OBENG

SIGNATURE: .....

DATE: .....04/10/2022.....

4. **THE PRINCIPAL, HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE, BEREKUM**

NAME: MONICA NKRUMAH

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