KIBOGORA POLYTECHNIC

Science - Conscience - Faith

FACULTY: HEALTH SCIENCE

DEPARTEMENT: GENERAL NURSING UPGRADING BACHELOR A0

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE OF NURSES IN THE MANAGEMENTS OF EARLY AND LATER NEONATAL SEPSIS AT MIBILIZI DISTRICT HOSPITAL

This Research Thesis submitted in partial fulfillment of the requirements for the bachelor's degree with honor in Health Sciences with General Nursing

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DECLARATION

Declaration by the candidates

We Louis MUKOTANYI and Rhadia MUGISHA hereby declare that this is our own original work and not a duplication of any similar academic work. It has therefore not been submitted to any other institution of higher learning. All materials cited in this paper which are not our own have been duly acknowledged.

Signed……

Date ……

Declaration by the supervisor

I declare that this work has been submitted for examination with my approval as KP supervisor

SUPERVISOR'S NAME …….

SIGNED …….

DATE …….

DEDICATION

We are dedicating our research thesis to Almighty GOD , our lovely parents, our brothers and sisters, our project supervisor, neonatology team of mibilizi dh, our classmates and we highly take into consideration all contributions from individuals to complete our study. MAY GOD BLESS YOU A LOT!

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ABSTRACT

Neonatal sepsis is one of the major health problems throughout the world. Every year an estimated 30 million newborns acquire infection and 1-2 million of this die. The present review provides updates regarding neonatal sepsis to help pediatricians to protect the newborn from this deadly problem. (Qamar FN, Shahzad H, Qadir M, Zaidi AK10 Jun 2013)

Among many risks factors the single most important neonatal risk factor is low birth weight. Other main risk factors are invasive procedures like lumber puncture, iv lines insertion peripherals as well central lines in the postnatal period and inadequate hand washing before and after handling babies. Tollner U in 1982. Antibiotics should be given to most of the neonates suspected of infection. Ampicillin and gentamicin are the first drug of choice.

This study found that overall prevalence of neonatal sepsis was second cause of death after complications of prematurity and many cases of sepsis hospitalized compared to other indications of neonatal admission from regular monthly report of neonatology at Mibilizi dh. the prevalence of neonatal sepsis at mibilizi district hospital is high and increased month by month according to the local report and to identify some of contributing factors related to nurses knowledge, attitude and practice in prevention and managements of both early and later neonatal sepsis. we found that about the knowledge on the treatment (29%), complication (57%) and days for antibiotics (29%) nurses need to refresh knowledge. About practice, health education to mother before discharge (14%), hand hygiene between different cases (29%) and daily challenges include shortage training for new protocols, shortage of space and beds, poor knowledge related to home care of neonate(hygiene), high cost of medications due to poverty and ignorance of parents.

Therefore, further research should be conducted to measure the burden of neonatal sepsis, and to observe other neonatal health related problems. Health care providers should helped to improve knowledge for better management and improve the level of practice during daily duty to prevent any possible source of infections at maximum, in order to prevent sepsis as well as further complications for neonates.

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LIST OF ABBREVIATIONS, ACCRONYMS AND SYMBOLS

ARV: anti-retroviral

BP: blood pressure

CMV: cytomegalovirus

CNS: central nervous system

CRP: C-reactive protein

CSF: cerebral spinal fluids

DH: district hospital

DIC: disseminated intravascular coagulopathy

EMTCT: elimination of mother to child transmission

EOS: early onset sepsis

GBS: group B streptococcus

GBV: gender-based violence

HIV: human immunosuppress virus

HSV: herpes simples' virus

ICU: intensive care unit

IM: intra muscular

IU: international unit

IV: intravenous

KMC: kangaroo mother care

KP: Kibogora polytechnic

LOS: late onset sepsis

MOH: minister of health

NCDs: non-communicable diseases

NICU: neonatal intensive care unit

NS: normal saline

O2: oxygen

OPD: out-patient department

PROM: preterm rapture of membranes

TB: tuberculosis

UTI: upper tract infections

WHO: world health organization

%: percent

=: equal

? : Question mark

(): parenthesis

CHAPTER ONE: GENERAL INTRODUCTION

I.1.BACKGROUND OF THE STUDY

Neonatal sepsis is a systemic infection occurring in infants at 28 days of life and is important cause of morbidity and mortality of newborns. (Puopolo KM, Wi S, et al 2014).

Neonatal sepsis (NS) is a worldwide problem that presents a management challenge to care groups for neonates and infants. It has been explained that neonates are at the highest risk for bacterial sepsis, with the prevalence at 1 to 10 per 1000 live births worldwide. **(**Puopolo KM, Wi S, et al 2014)

In Africa sepsis accounts 28% neonatal deaths and infectious causes account for 68 deaths per 1000 live births. In sub-Saharan Africa, seventeen percent among all neonatal death results from neonatal sepsis as compared to only six percent in developed countries. (Zaidi A, et al. 2010).

Early-onset neonatal sepsis (EOS) has been variably defined based on the age at onset, with bacteremia or bacterial meningitis occurring at 72 h in infants hospitalized in the neonatal intensive care unit (NICU), versus less than 7 days in term infants**.(** Escobar GJ 2014)

Late-onset sepsis (LOS) is sepsis occurring after 72 h in NICU infants and 7 days of life in term infants. Early-onset neonatal infections of viral or fungal etiology may also occur at less than7 days of life and must be distinguished from bacterial sepsis. (Escobar GJ 2014)

The incidences are estimated to be 26 per 1,000 premature infants and 8 per 1,000 live births weight of between 1,000 and 1,500 g .(Liu, L., et al. 2012).

According to (Liu, L., et al. 2012) Select populations of neonates are at much higher risk, including term black infants (0.89/1,000 live births) and nonblack preterm infants (2.27/1,000 live births), the same with black preterm infants having the highest rates of both infection (5.14/1,000 live births) and mortality (24.4% case fatality ratio**.** (Liu, L., et al. 2012).

Approximately three-quarters 3/4 of neonatal deaths take place in the first seven days of life (Lawn et al. 2005). Unlike older children, who often die of infections, newborns most often suffer from complications of preterm birth, intra-partum-related complications (such as birth asphyxia), and congenital conditions (Lawn et al. 2005).

After the first week, sepsis and other infections play a major role during the first month of life. As one among low incomes and developing countries like the most African populations, in Rwanda it is estimated that 29% of total neonatal deaths are due to neonatal sepsis. (Rwanda neonatal protocol 2020).

I.2. PROBLEM STATEMENT

Worldwide, neonate infection is one of the most causes of neonate death in the world (Kessie, 2019). Deaths occurring in the neonatal period each year is 41% (3.6 million) of all deaths in children under five years, in fact the majority of these deaths occur in low income countries, and almost 1 million of these deaths are attributable to sepsis (Getabelew et al., 2018**)**. In east Africa, research done on neonatal sepsis found that the prevalence of neonatal sepsis in east African countries in 2019 was 29.6% (Kessie, 2019).

In Rwanda, Neonatal mortality in 2016 was 20 per 1000 live births where provincial and district hospitals had great contribution to this mortality rate with 63%, furthermore neonatal sepsis was the third leading cause of neonatal mortality with 10% after prematurity and birth asphyxia (Rogo, 2016). According to annual statistic of Rwanda done in 2015, revealed that neonatal mortality rate in health institutions had increased from 12 per 1000 live births to 14 per 1000 live births from 2014 to 2015 in Rwanda.

According to Agan Afaya in 2019, Neonatal sepsis was still a remarkable problem as it contributed to a lot of neonatal death and estimation of the exact neonatal sepsis is still limited by uncertainty in diagnosis and estimation of incidence that is why further assessment of nurses in management of neonatal sepsis is in need (Afaya, 2019). During our clinical placement in 2019, we found that there were many neonates who were admitted in neonatology at mibilizi hospital with neonatal sepsis and it became our motivation to do our research on its management.

According to research done by A. M. Kayinamura, Y. Serubibi, J. B. Kakoma 2009, revealed that neonatal sepsis was third cause of neonatal death with 30%, but they didn’t research about nurses knowledge, attitude and practice in clinical management of neonatal sepsis that is why we were encouraged to find its update prevalence and its contributing factors, furthermore this

research has recommended to do further research on cause of neonatal death in order to find the way of preventing that causes (Kayinamura et al., 2010).

We were interested to make our research at mibilizi district hospital based on regular monthly report of top five causes of hospitalization since July 2020 to May 2021 including neonatal sepsis with 147 cases, premature with 98 cases, asphyxia with 57 cases, congenital malformation with 19 cases and skin infections with 4 cases. Where neonatal sepsis death account 3 in 6 equal to 50% July 2020, and 2 death in 5 occurred in march 2021 equal to 40% from data accounted put neonatal sepsis as second causes of deaths after complications of premature and based on other researcher like Kayinamura in 2009 that revealed sepsis as second cause of neonatal death in Rwanda in neonatology of Mibilizi district hospital they admit many cases and death due to sepsis. That why this research has to find out the knowledge, attitude and practice of nurses to manage neonatal asepsis

I.3. OBJECTIVES

I.3.1. General Objective

The main objective of the study is to assess the nurse's knowledge, attitude and practice in management of early and later neonatal sepsis at MIBILIZI DH

1.3.2. Specific objectives

- To determine nurse's knowledge, attitude and practice in the management of early and later neonatal sepsis.
- To identify the use of national standard tools in management of early and later neonatal sepsis at MIBILIZI DH.
- To identify the barrier facing by nurses in management of early and later neonatal sepsis at MIBILIZI DH.

I.4. RESEARCH QUESTIONS

1. What is the knowledge, attitude and practice about nursing management of early and later neonatal sepsis at MIBILIZI District hospital?

2. How do nurses use the national standard operations procedures [protocols] about clinical management of early and later neonatal sepsis in department of neonatology at MIBILIZI District hospital?

3. Which barrier do nurses face during management of early and later neonatal sepsis at MIBILIZI DH?

1.5. JUSTIFICATION OF THE STUDY

1.5.1 Personal interest

The benefit from this study on the side of student will increase the knowledge, experience in obtaining correct information in research project

1.5.2 Professional interest

this study will increase nurse's knowledge and skills about early and later neonatal sepsis management

In practice this study will decrease neonatal morbidity and neonatal mortality rate.

1.5.3. Scientifically interest

For school of nursing and midwifery and other researchers the study provided information related to neonatal sepsis and associated risk factors so that it can be used in adjustment of curriculum therefore will be used as a tool in building knowledge and facilitating learning.

1.6. SCOPE OF THE STUDY

1.6.1 In time

This study will be conducted in period of 2 weeks from 01st-14th February 2022

1.6.2. In space

It is limited at mibilizi hospital.

1.6.3. In domain

This study is limited in maternal and child health especially in pediatric and neonatology department on knowledge, attitude and practice of nurses in management of early and late neonatal sepsis.

CHAPTER TWO. LITERATURE REVIEW

2.0 INTRODUCTION

This chapter will talk about the definition of neonatal sepsis and its program as one of the major health interventions to prevent childhood morbidity and mortality.

2.1 THEORETICAL LITERATURE REVIEW ON NEONATAL SEPSIS

2.1.0 DEFINITION

Neonatal sepsis is a clinical syndrome consisting of nonspecific symptoms and signs of infection, accompanied by the presence bacteria in blood during the first 28 days of (Coetzee life et al., 2017)**.**

2.1.1 CLASSIFICATIONS

2.1.2 EARLY NEONATAL SEPSIS: Early-onset neonatal sepsis (EOS) has been variably defined based on the age at onset, with bacteremia or bacterial meningitis occurring at ≤72 h in infants hospitalized in the neonatal intensive care unit (NICU), versus <7 days in term infants. In preterm infants, EOS is most consistently defined as occurring in the first 3 days of life and is caused by bacterial pathogens transmitted vertically from mother to infant before or during delivery. (By A. Belachew 2020)

Neonatal sepsis may be categorized as early onset (day of life 0-3) or late onset (day of life 4 or later). Of newborns with early-onset sepsis, 85% present within 24 hours (median age of onset 6 hours), 5% present at 24-48 hours, and a smaller percentage present within 48-72 hours. Onset is most rapid in premature neonates. . **(**Tewabe, T.neonatal 2020 july).

Early-onset sepsis is associated with acquisition of microorganisms from the mother. Infection can occur via hematogenous, transplacental spread from an infected mother or, more commonly, via ascending infection from the cervix. Organisms that colonize the mother's genitourinary (GU) tract may be acquired by the neonate as it passes through the colonized birth canal at delivery. **(**tewabe, T.neonatal 2020 july).

According to WHO guideline in 2016, in order to diagnose neonatal sepsis, the following laboratory exams should be taken like blood Cultures, C-reactive protein (CRP), Complete blood count (CBC), and Lumbar puncture (Bielicki, 2016). Normally CRP rises within 12 hours after onset of sepsis and returns to normal within two to seven days of successful treatment, but same times it can remain elevated after treatment so when this occurs further investigation should be done in order to find the cause of that, furthermore CRP is raised in 85 per cent of episodes of confirmed sepsis (Bielicki, 2016).

2.1.3. LATER NEONATAL SEPSIS: Late-onset sepsis (LOS) is sepsis occurring after 72 h in NICU infants and 7 days of life in term infants. A bacterial infection such as sepsis, urinary tract infection, or meningitis can have serious consequences for newborns serious infections can be difficult to detect in newborns. **(**Tewabe, T.neonatal 2020 july).

2.1.4 SIGNS AND SYMPTOMS

Abnormal vital signs:

Temperature >38^{o}c

Unexplained hypothermia<36^{o}c

Tachycardia>180 or bradycardia<80

Tachypnea: RR>60

Apnea

Bradycardia: RR<30

II.3.B Abnormal Assessment

Poor perfusion Capillary refill time > 3 seconds, hypotension

Abnormal breathing: Gasping, Grunting, Severe Chest Indrawimg, Nasal Flaring, Apnea

Abnormal color: Cyanotic, Pale,Gry,Mottled ,Jaundice, Erythematous including umbilical flare

Abnormal activity: Tremor, irritability, seizures, stiffness,Hypotonia,lethargy

Abnormal feeding: Poor feeding, abdominal distension, recurrent vomiting diarrhea, otherwise unexplained hypo-hyperglycemia

Bulging fontanelle: Specific to meningitis (according to Rwanda neonatal protocol 2020)

2.1.5: MANAGEMENTS OF NEONATAL SEPSIS

2.1.5.1 pharmaceutical management

Table 2.1.5.1.1 Selection of Antibiotic Therapy

Indications / Lines	Sepsis evaluation	Suspected sepsis,pneumonia , or UTI	Suspected meningitis
1st line	**Ampicillin + Gentamicin**	**Ampicillin + Gentamicin**	**Ampicillin + Cefotaxime preferred) or Ceftriaxone**
2nd line	**Ampicillin + Cefotaxime**	**Ampicillin + Cefotaxime**	
3rd line	**Ciprofloxacin**	**Ciprofloxacin**	**Ciprofloxacin**

(According to Rwanda neonatal protocol 2020)

Table 2.1.5.1.2 NEONATAL DOSES OF COMMON ANTIMICROBIALS

Drug	Dose	Interval[1]			Infusion Time	Comments
		<35 weeks or <2kg	Term ≤7 days	Term > 7 days		
Acyclovir	20 mg/kg/dose IV or PO	12 hourly	8 hourly	8 hourly	60 minutes IV	Ensure adequate hydration due to risk of nephrotoxicity. Treatment of herpes Simplex infection: 14 days if localized, 21 days if disseminated.
Ampicillin or Cloxacillin	50 mg/kg/dose IV2 Meningitis: Preterm or <2.5 kg and Term ≤7 days: 100 mg/kg/dose IV Term >7 days: 100 mg/kg/dose IV	12 hourly	12 hourly	8 hourly	IV slow push 3-5 min	Ampicillin should be followed by a saline flush BEFORE administering gentamicin. Never combine medications in the same syringe.
Cefotaxime3	50 mg/kg/dose	12 hourly	8 hourly	6 hourly	IV slow push 3-5 min	Preferred over ceftriaxone due to improved safety profile.

Table 2.1.5.1.3. ANTIBIOTIC COVERAGE BY CONDITION

Condition	Clinical Condition	Laboratory Results	Treatment recommends	Therapy Duration	Comments
Sepsis Evaluation: negative	Normal vital signs, appears well	Normal WBC, differential, CRP, CXR	Ampicillin Gentamicin	48 hours	
Sepsis/ Pneumonia	Abnormal vital signs, appears ill	Abnormal WBC, differential, CRP, CXR	Ampicillin Gentamicin	7 days	
Sepsis/ Pneumonia: Not improving	Abnormal vital signs, appears ill, poor response to antibiotics after 48 hrs	Abnormal WBC, differential, CRP, CXR	Ampicillin Cephalosporin	7- 14 days	Cefotaxime preferred over ceftriaxone
Meningitis	Abnormal vital signs, appears ill, abnormal neurological exam	Abnormal WBC, differential, CRP, CXR, CSF	Ampicillin Cephalosporin	14 days if gram + 21 days if gram -	Cefotaxime preferred over ceftriaxone
Urinary Tract Infection	Abnormal vital signs, appears ill	Urinalysis concerning for urinary tract infection	Ampicillin Gentamicin	7 days	Generally considered in newborns ≥ 7 days

2.5.2 NON-PHARMACETHICAL MANAGEMENT

Avoiding unnecessary separation of the newborn from the mother eg; baby unit, hand washing before delivering and handling the infant , Good basic hygiene and cleanliness during deliver

Appropriate umbilical cord care ,Health education about home care of newborn and to detect early warning signs ,Appropriate eye care,Exclusive breastfeeding

Strict procedures for hand-washing/alcohol hand rubs for all staff and families before and after handling infants ,Use of KMC instead of incubators ,Clean injection practices ,Removing iv drips when they are no longer necessary,Is focused primarily on development of vaccines against GBS

2.6. COMPLICATIONS

RESPIRATORY; Ensure adequate oxygenation with blood gas monitoring and initiate O2 therapy or ventilator support if needed.

CARDIOVASCULAR; Support BP and perfusion to prevent shock. Use volume expanders, 10-20 mL/kg (normal saline, albumin, and blood), and monitor the intake of fluids and output of urine.

Hematologic DIC; one may observe generalized bleeding at puncture sites, the gastrointestinal tract, or CNS sites. In the skin, large vessel thrombosis. parameters consistent with DIC include: thrombocytopenia.

Measures include treating the underlying disease; fresh-frozen plasma, 10 mL/kg; vitamin K; platelet infusion; and possible exchange transfusion.

CNS Implement seizure control measures ◊ Phenobarbital, 20 mg/kg loading dose if seizures

METABOLIC Monitor for and treat hypo- or hyperglycemia. ◊ Metabolic acidosis may accompany sepsis and is treated with bicarbonate and fluid replacement. Other danger complications like

Multi-organ dysfunction and or injury to the developing brain

Fetal loss or early neonatal death**. (seale AC,Zaidi AK; 2014)**

2.6.1. EMPERICAL LETURETURE REVIVIEW

Analysis of several studies reports an estimate of NS of 2,202 (95% 1,099 - 4,360) per 100,000 live births, with mortality between 11% and 19% in high- and middle-income countries. However, the burden of NS varies greatly from one setting to another, depending on the level of organization of the health system and socio-demographic characteristics of the populations. (Walker O, Kenny CB ,2019)

The reported incidence of NS ranges from 7.1 to 38 per 1,000 live births in Asia, 6.5 to 23 per 1,000 live births in Africa, and 3.5 to 8.9 per 1,000 live births in America South and the Caribbean. By comparison, reported rates in the United States and Australia vary from 1.5 to 3.5 per 1,000 for EONS and up to 6 per 1,000 live births for LONS, for a total of 6-9 per 1,000 for NS. In the world, NS contributes significantly to neonatal morbidity and mortality; it constitutes

a major public health challenge. The most common causes of death in the neonatal period are infections (35%), followed by prematurity (28%), intrapartum complications (24%), and asphyxia (23%). NS is responsible for 26% of deaths in children under-5, with the highest death rates in sub-Saharan Africa. The data available is a mixture of official sources and studies both hospital and community. In developing countries, statistics may be underestimated due to high rate of home deliveries and low percentage of attendance by skilled health workers. Establishing numbers and causes of neonatal deaths is therefore difficult given that a large number of newborns die at home without ever being in contact with health workers and without ever integrating the statistics. (Shane AL, Sánchez PJ, 2017).

The most neonatal deaths resulted from preterm birth complications followed by intrapartum-related events for South Africa, while in Kenya intrapartum-related complications were the leading cause. Neonatal sepsis, congenital abnormalities and pneumonia ranked 3rd, 4th, and 5th in both countries as diarrhea was insignificant as a cause of neonatal death. South Africa has been able to manage intrapartum-related complications better than Kenya. However, South Africa continues to struggle with preterm births. Because South Africa's economy is more developed than Kenya's, their increased death rate from more preterm birth was unexpected. More developed income countries tend to have better universal neonatal intensive care to care for the preterm births than their counterparts. (Okube OT, Sambu LM 2017)

Sepsis was attributed to cause approximately 400,000 neonatal deaths in 2015 globally, half of which occurred in sub-Saharan Africa where 34.6% to 66.0% of neonatal deaths reportedly occur within the first 24 hours of life. Bacteria are the leading cause of neonatal sepsis. Early empirical antimicrobial treatment is associated with better outcomes in neonatal sepsis, but antimicrobials must be discontinued timeously to prevent the emergence of further antimicrobial resistance. WHO. Newborn for Africa. *Geneva: 2019.*

Nonetheless, many studies report infections as one of the 3 leading causes of death both in the world and in Africa. (WHO. (2016))

CHAPTER THREE: METHODOLOGY

3.0 INTRODUCTION

This chapter outlines the method that was used to conduct the study. It covers the setting in which the study was done or area description, the study design, the target population (with inclusion and exclusion criteria) and sampling strategy and size, method of data collection (including the design of the data collection instrument, problem and limitations, ethical considerations and data analysis.

3.1 STUDY AREA DESCRIPTION

This study was conducted at MIBILIZI DH. This Hospital is located in Western Province, RUSIZI District, GASHONGA Sector, KAREMEREYE Cell and MIBILIZI Village. It is attended by a lot of patients from large catchment area as it is district hospital served by 11 health centers as follow; Nkungu, Nyabitimbo, Mibilizi; Mushaka; Mashesha; Bugarama, Islamique, Nyakarenzo, Rwinzuki, Nyakabuye and Gikundamvura for OPD and hospitalization services in their respective department according to reasons of transfer.

3.2 RESEARCH DESIGN

It is a cross sectional study that was carried out on the number of nurses and midwife in neonatology department at MIBILIZI District Hospital 2 weeks from 01st-14th February 2022.This method is retrospective method in conducting our study.

3.3 TARGET POPULATION

The study was carried out on the nurses and midwife who admit and follow newborns with early and later neonatal sepsis in neonatology at MIBILIZI District Hospital according to inclusion and exclusion criteria.

3.3.1 Inclusion criteria

This study included all nurses and midwife at all levels as follow; A1 and A0 who admit cases with signs and symptoms of early and late neonatal sepsis and they are current working on duty during our study period (day or night duties).

3.3.2 Exclusion criteria

All other cases admitted with no relative signs and symptoms of early and late neonatal sepsis in neonatology department of mibilizi district Hospital during our study period.

All registered nurses and midwife who are in annual leave.

3.4 SAMPLING TECHNIQUES

As sample is the number of individuals selected from a population for a study. We will use simple random sampling technique, where we will pick available nurses and midwife who are working currently (on duty) for observations, interview and questionnaire.

3.5 SAMPLE SIZE

Sample size calculation will not be necessary because our total population is low, we will use all available nurses in neonatology as sample. Sample for this study was obtained using formula given by Taro Yamane 1967 $n = \frac{N}{1+N(e^2)}$. Where

n - is the sample size,

N - Is the total population, and

e: is the marginal error set at 5% = 0.05 (Fox & Hunn, 2009)

Our total targeted population is seven health care providers working in neonatology of mibilizi DH (both nurses and midwife). And they have all participated in our research

Let us use this formula to calculate sample size

N= 7, e= 0.05, n is sample size

$n = \frac{N}{1+N(e^2)} = \frac{7}{1+7(0.0025)}$= 6.9 which is almost 7 health care provider

3.6 REASERCH INSTRUMENT FOR DATA COLLECTION

In our research, a slight modified questionnaire provided, was used to collect data. Questionnaire of this study is composed of 4 parts and the total questions 25. The first part is socio-demographic characteristics of nurses and it is composed by 6 questions, second part is knowledge related questions and it will be composed by 7 questions, third part is attitude related questions and it is composed by 4 questions, fourth part is Practice and challenges related questions and it is composed by 8 questions. For all section the respondents have mark the response with a cross (√) in the box provided and writing in provided space. The collected data

by the questionnaire will be used in the study of knowledge, attitude and practice of nurses in management of early and later neonatal sepsis at Mibirizi district hospital.

3.7 DATA COLLECTION PROCEDURE

Before conducting this study, we asked permission to ethical committee of Kibogora polytechnic. After receiving the permission from ethical committee, we asked permission to ethical committee at Mibilizi DH to collect data and sign consent by participants. After getting permission to conduct research at Mibilizi hospital, we started the process of data collection but before we provided more information to the participants regarding to the study research such as purpose of the study, instructions to consider during data collection period and tools used to the administration of Mibilizi hospital especially neonatology service unit staff. Finally, after the explanation of the research to the available participants, and after obtaining consent from the hospital's administration to have access to the concerned files we started filling of information from the file picked randomly to the questionnaire so as to answer the questions provided on the questionnaire without writing down their names. The answers provided, acted as basis for analysis and conclusion.

3.8 ETHICAL CONSIDERATION

In order to sure that the safety and privacy of participants is adequate and to prevent human abuse, before conducting this research, we requested the permission from Kibogora polytechnic and ethical committee at Mibilizi hospital administration in order to conduct the research. We gave participants clear information about the study, participants who agreed, will sign consent form and participation is voluntary, informed consent form will be signed by everyone before participating in the research and there are no names to questionnaires and no sharing information any other person known by participants without the participants permission to assure participants 'confidentiality for all information they have provided(**Ismail2013)**,the participants right privcy ,confidenti ality,respect, dignity ,patient safety and information} have to be respected. Participants are allowed to refuse or withdraw at any stage of study. The result will be disseminated by researchers for all concerned people after finishing data analysis of the study

3.9 DATA ANALYSIS

Data have to be entered and analyzed by using Microsoft excel by displaying data in different tables and charts. The data analyses will be focused on descriptive statistics whereby variables, frequencies and percentages.

3.10 PROBLEMS OF THE STUDY

The problems that we have meet with during our study is that some of staff had challenge of language due to they learned in French while our tool was designed in English as our learning language. So, we explained questions in kinyarwanda where possible. The other problems were related to transport as it is rural area and time limited with other responsibilities as students.

3.11 LIMITATIONS OF THE STUDY

The limitations that we met during our study were the following; there was shortage of published studies conducted on neonatal sepsis in Rwanda, where we found only one published study on the same topic and we had no other research before.

3.12 VALIDITY AND RELIABILITY OF INSTRUMENTS

Validity is the extent to which an instrument measures what is supposed to measure and perform whereas reliability refers to the extent to which the same answers can be obtained more than one time**(polit,2017)**

CHAPTER 4. DATA PRESANTATION, ANALYSIS AND INTERPRETATION

4.1. INTRODUCTION

In this chapter, the findings on data collected are analyzed and interpreted. The study result are described, discussed, analyzed and presented in tables.

The collected data have been analyzed to determine the knowledge of nurses in the management of neonatal sepsis at Mibilizi district hospital. The statistics have presented by using Microsoft excel and charts.

4.2. SOCIO DEMOGRAPHIC CHARACTERISTICS

Our study collected data on socio demographic characteristic on six nurses and 1midwife working in neonatology of mibilizi dh. Those variables were age, sex, level of degree and age of experience.

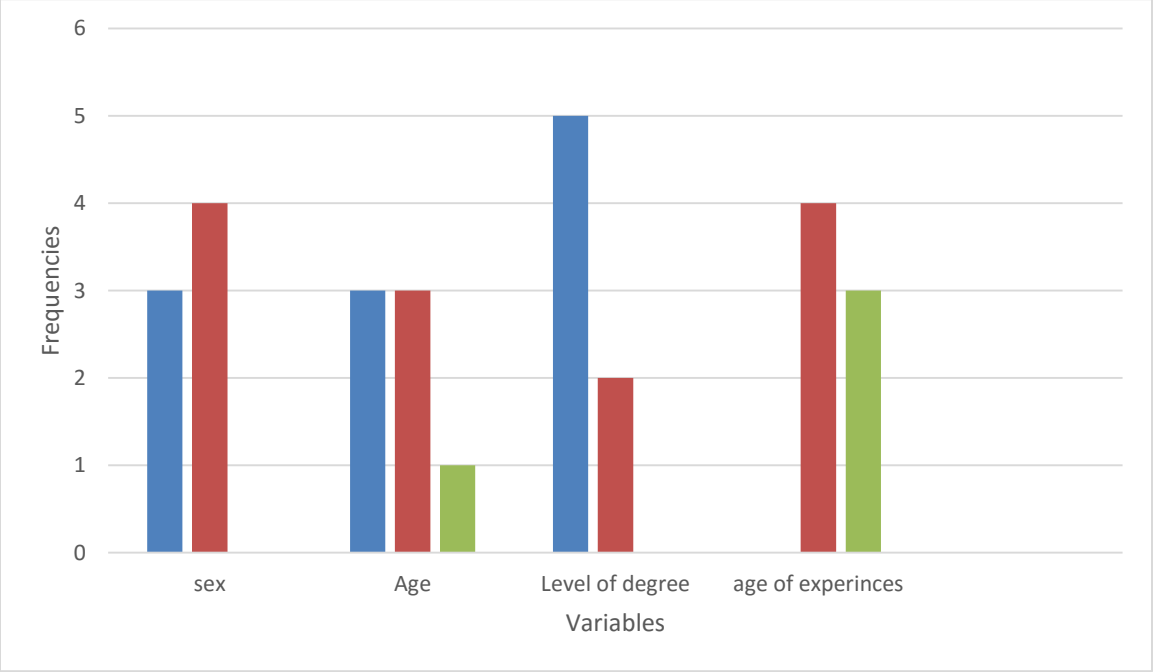
The result found are presented in table below.

TABLE 4.2.1. DISTRIBUTION OF SOCIO DEMOGRAPHIC CHARACTERISTICS

Variables	Characteristics	Frequencies	Percentage
1.Sex	Male	3	43
	Female	4	57
2. Age	Between 22-30	3	43
	Between 31-40	3	43
	Above 41	1	14
3.level of studies	A1	5	71
	Ao	2	29
	Masters	0	0
4.Experience	Less than 1 year	0	0
	Between 1-5	4	57
	Between 6-10	3	43

Table 4.2.1. illustrates that participants who are male are 3(43%) and female are 4(57%),regarding to age, participants who are aged between 22-30 are 3(43%) between 31-40 are 3(43%) and above 41 is 1(14%),about level of degree A1 are 5(71%),Ao are 2(29%) and masters are 0(0%) concerning age of experience, participant who has experience less than 1 year (0%), between 1-5 are 4(57%) and between 6-10 are 3(43%).

4.2.2. Demographic chart



4.3. DISTRIBUTION OF KNOWLEDGE OF NURSES ON NEONATAL SEPSIS

Table 4.3.1. Nurses' knowledge on neonatal sepsis

Variables	**characteristics**	**Frequency**	**Percentage**
1.Meaning	Yes	6	86
	No	1	14
2.Causes	Yes	1	14
	No	6	86
3.Risk factors	Yes	6	86
	No	1	14
4.Signs	Yes	7	100
	No	0	0
5.Treatment	Yes	5	71
	No	2	29
6.Complication	Yes	3	43
	No	4	57
7.Duration on antibiotics	Yes	5	71
	No	2	29

Table 4.3.1. illustrates Nurses who know 6 nurses equal to (86%) understand the definition of neonatal sepsis while one nurse equals to (14%),does not know it about the causes is 1(14%) and who don't know are 6(76%),regarding to nurses who know the risk factors are 6(86%) and 1(14%) who doesn't know, about nurse who know signs and symptoms of neonatal sepsis are 7(100%) and ,about nurses who know the possible complications of neonatal sepsis are 3(43%) and 4(57%) they don't know concerning to nurses who know duration antibiotics are taken are 5(71%) and those who don't know are 2(29%).

According to the findings from this research we have found that all staff don't have the same knowledge especially the causes and complications and this can hinder the proper management of neonatal sepsis as it is shown on the chart below;

4.3.1. Distribution of knowledge of nurses on neonatal sepsis chart

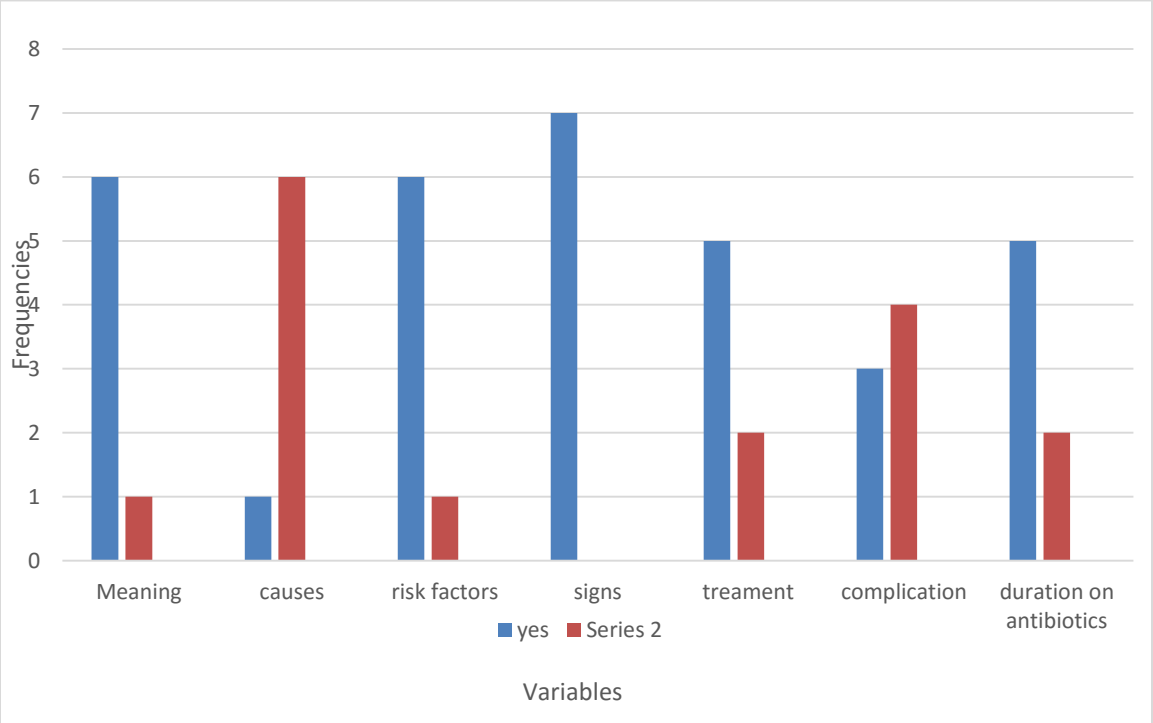


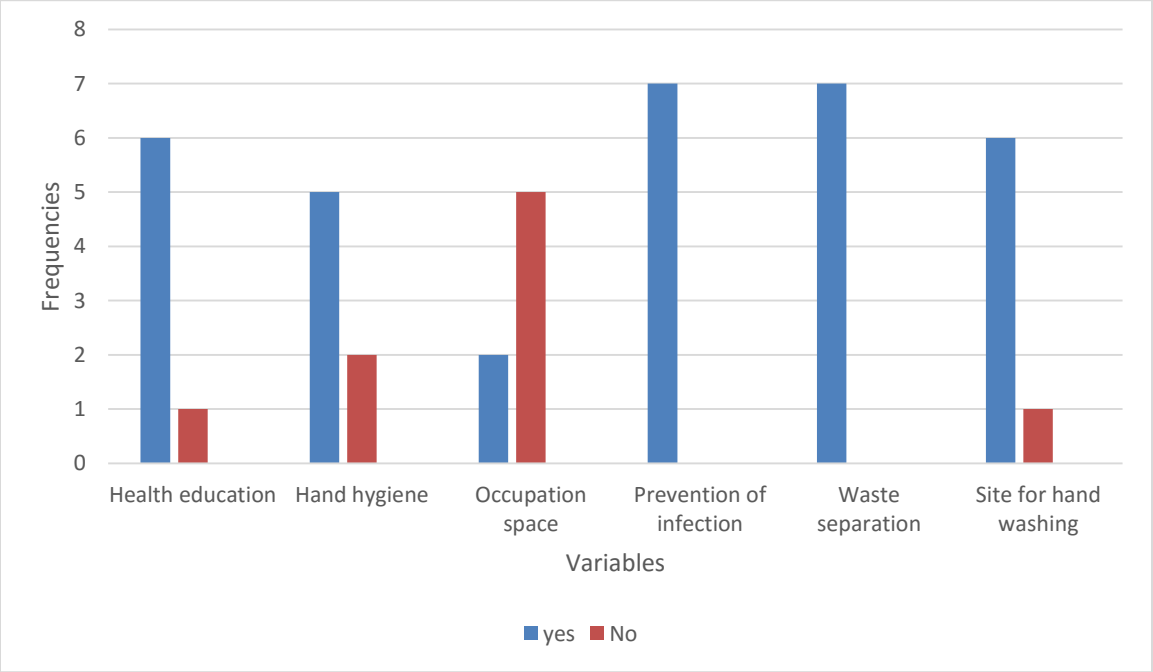
Table 4.4 DISTRIBUTION OF NURSES'PRACTICE ON NEONATAL SEPSIS

Table 4.4.1. DISTRIBUTION OF NURSES'PRACTICE ON NEONATAL SEPSIS

Variable	Characteristics	Frequency	Percentage
1.Health education	Yes	6	76
	No	1	14
2.Hand Hygiene	Yes	5	71
	No	2	29
3.Occupation space (bed)	Yes	2	29
	No	5	71
4.Sharing the disinfected materials	Yes	7	100
	No	0	0
5.Waste separation	Yes	7	100
	No	0	0
6.Site for hand washing	Yes	6	86
	No	1	14

Table 4.4.1 illustrate data of participants where study found 6 Nurses equal 86% who know well to give health educations, while one equal to 14% don't, about proper hand hygiene 5 nurses equal to (71%) and 2 of them equal to (29%) they don't, about occupation beds according to rate of admissions 2 nurses equal to 29% agree that beds are enough while 5 participants equal to 71% said not enough space and even beds. 7nurses equal to 100% remember well to disinfect materials before and after sharing like those used in vital sign monitoring. 7 nurses equal to 100% used to separate medical waste who do waste separation are (100%) and nurses who don't separate waste are 0(0%),concerning site for hand washing 6 nurses equal to 86% stated that sites are enough and one equal to 14% nurse don't.

4.4.2. DISTRIBUTION OF NURSES' PRACTICE ON NEONATAL SEPSIS CHART



As shown on above chart and based on data analyzed, nurses don't have the enough facilities to prevent infections especially on shortage of beds and space for admission and sites for hand hygiene. This can mask some source of infections and this lead to poor management of neonatal sepsis and even cause acquired infections.

4.5. DISTRIBUTION OF NURSES' ATTITUDE ON NEONATAL SEPSIS

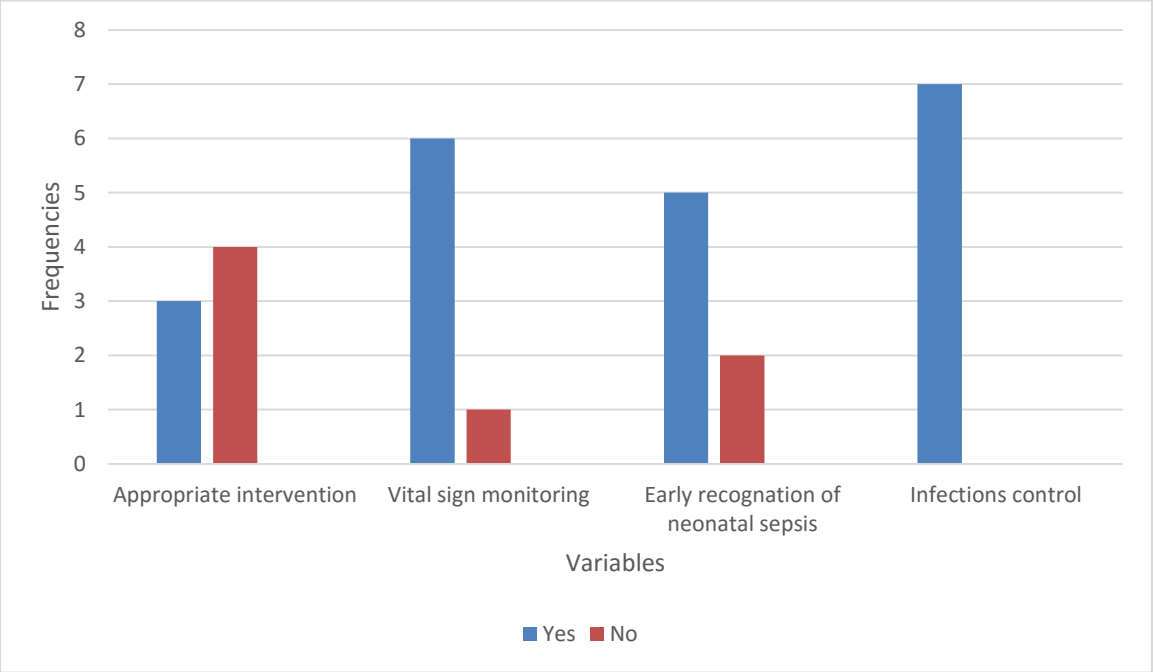
TABLE 4.5.1. DISTRIBUTION OF NURSES' ATTITUDE ON NEONATAL SEPSIS

Variables	**Characteristics**	**Frequency**	**Percentage**
1.Immediate intervention	Yes	3	43
	No	4	57
2.Vital sign monitoring	Yes	6	86
	No	1	14
3.Early recognition of neonatal sepsis	Yes	5	71
	No	2	29

4.Infection control	Yes	7	100
	No	0	0

Table 4.5.1. Illustrate that 3 nurses equal to 43% are able to apply appropriate interventions on time while 4 equal to 57% delay to take actions. 6 Nurses equal to 86% can monitor vital signs closely and 1 equal to 14% don't. about nurses who can early recognize neonatal sepsis are 5 equal to (71%) while 2 nurses 29% cannot recognize neonatal sepsis earlier, concerning nurses who know how to control infection are 7(100%).

4.5.2. Distribution of nurses' attitude on neonatal sepsis chart



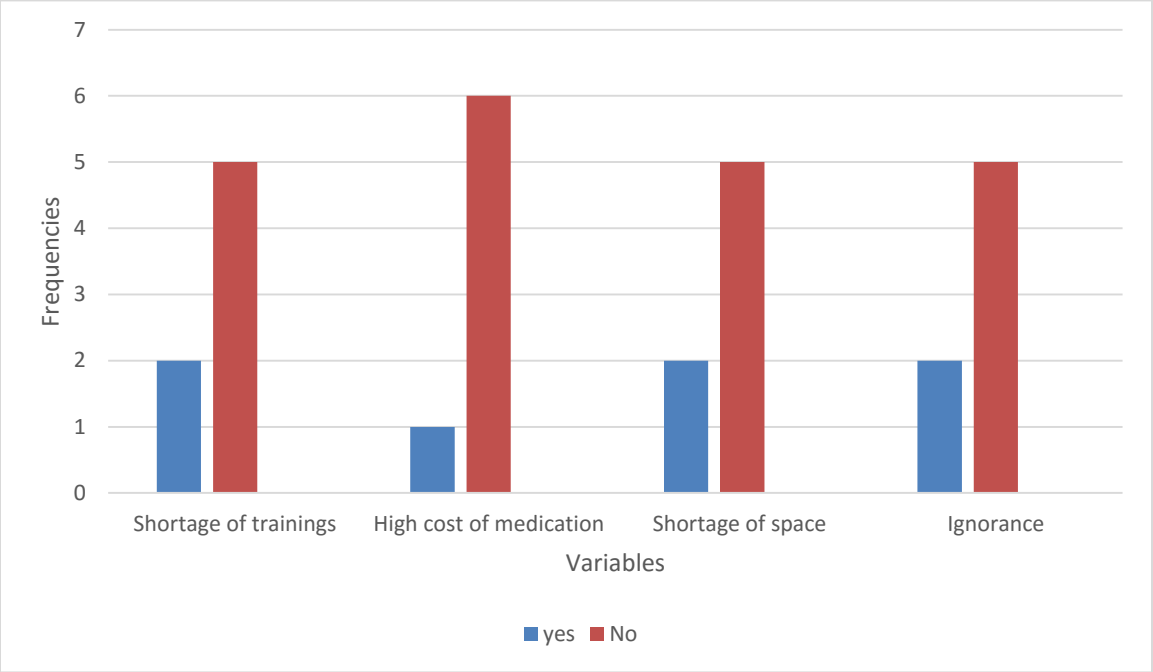
According to data collected show that , study found that nurses don't have the same level or understanding about early detection of neonatal sepsis on 29 % and also 57 % who can delay to respond on time. This can finally mask proper management and cause other complications include death.

TABLE 4.6.DISTRIBUTION ABOUT BARRIERS IN MANAGEMENT OF NEONATAL SEPSIS

Variables	characteristics	Frequency	Percentage
1.shortage of trainings	Yes	2	29
	No	5	71
2.high cost of medications	Yes	1	14
	No	6	86
3.occupation space (beds, incubators)	Yes	2	29
	No	5	71
4.Ignorance of parents	Yes	2	29
	No	5	71

Table 4.6.1 illustrate that 2 nurses equal to 29% show that the challenges during proper managements, 1 nurse equal to 14% challenged by parents who are not able to afford medications fees even on health insurances, 2 nurses equal 29% challenged by shortage of occupation space include beds and incubators (only 15 bed and 3 well functional incubator) and 2 nurses equal to 29% challenged by ignorance of parents during health educations especially poor hygiene.

4.6.2. CHART OF DISTRIBUTION ABOUT BARRIERS IN MANAGEMENT OF NEONATAL SEPSIS.



All participants (6 nurses and 1 midwife) equal to 100% they have different challenges in their daily activities including shortage of trainings, new protocols, shortage of beds, high cost of medication and ignorance. From

4.7 DISCUSSION OF FINDINGS

Based on data collected and analysis done above in chapter 4, about nurses' knowledge on neonatal sepsis, we have found that nurses really know the signs of neonatal sepsis at 100% but about the real causes and complications of neonatal sepsis same of them have little knowledge at 14% about the causes and 57% about complication this can hinder the prevention and treatment of neonatal sepsis.

The collected data on nurse's practice shown that nurses provide health education at 86%,hand hygiene at 71%, material disinfection between cases at 100%,waste separation at 100%,site for hand washing are 76%,they meet with daily challenge at 100% in details nurses who have shortage of trainings are 1(14%),shortage of space (beds, incubators) are 5(71%) and about ignorance of the parents are 1(14%),about available beds on admission, nurses have barrier in

availability of beds on admission which can contribute to the spreading of infection as neonate have low immunity to fight against those causative agents, by using statistical data nurses are facing beds insuffiency on 71%.in addition to the data collected on nurse's attitude according to that we have found that nurses' knowledge and practices shown that standardization of the intervention and critical thinking according to the policy is pretty low at 57%,because they don't follow policy and procedures in prevention of neonatal sepsis , so about taking vital sings they do at 86%, nurses who can recognize neonatal sepsis are 5(71%) about the nurses who know infection control are 100%.

In general during the research the results carried at mibilizi DH we found that both nurses and midwife working in neonatology even those who can approach neonates or infants need to improve quality of practice and knowledge in management of early and later neonatal sepsis because even fail in one of each above variables analyzed, can lead to neonatal sepsis and its complications.

Early recognition and admission, health education for mothers about warning signs to consult near health facility on time without delay in clinical management, right medical management (antibiotics) and applying critical thinking for right interventions for critically neonate to save live.

Neonatal sepsis contributes significantly to neonatal morbidity and mortality and is a major public health challenge around the world. Depending on the mode of occurrence, a distinction is made between maternal-transmitted infection and that acquired in the postnatal period. Although the etiologies maternally transmitted diseases are well understood, those of postnatal acquired infections are variable depending on the epidemiology of each hospital environment. On the one hand, risk factors for maternal-transmitted infections are maternal sepsis, prolonged premature rupture of membranes, chorioamnionitis, and bacteriuria in the mother during pregnancy. (Gonete KA 2019)

On the other hand, risk factors for postnatal acquired infections are prematurity, low birth weight, lack of hygiene, and invasive therapeutic interventions. The diagnosis is based on a series of anamnestic, clinical and biological features. Although the positive diagnosis is based on

the isolation of the germ by culture on a body sample (blood, cerebrospinal fluid, urine, etc.); its low sensitivity leads to the use of markers of the acute phase of inflammation such as C-reactive protein, procalcitonin and interleukins. New molecular biology techniques are promising and offer precise diagnosis with rapid results. Empirical management is a function of microbial ecology while definitive treatment is guided by the results of microbial culture. This presents the essential elements for understanding neonatal sepsis and discusses new diagnosis and therapeutic management. It offers a thorough reading based on the issue of infections in newborns.(Agnche Z 2019)

Attempts to prevent sepsis's development or progression have been a driving factor for many quality improvement projects in newborn nurseries and NICUs. Managing such infants is complex and requires multidisciplinary care approach (Clinicians, nurses, pharmacies, lactation consultant, and social worker) supported by medical decisions made during family-based care rounds. Obstetric physicians are important in ensuring that GBS screening and all other prenatal screening for infections are performed and adequately treated before and during delivery. Nursery nurses are also important in preventing and managing neonatal sepsis as they can pick up and detect early signs of sepsis (Shane AL 2017).

CHAPTER FIVE CONCLUSON AND RECOMMENDATIONS

5.1Conclusion

The research about assessment of knowledge, attitude and practice of nurses in the managements of early and later neonatal sepsis conducted at Mibilizi dh, found that both nurses and midwife working in neonatology are facing challenges about knowledge, attitudes and practices where same of them don't know the meaning of neonatal sepsis, its causes, complication even are having insufficient of materials like beds so there is need to improve quality of practice and knowledge in management of early and later neonatal sepsis because even fail in one of each above variables analyzed, can lead to neonatal sepsis and its complications.

Early recognition and admission, health education for mothers about warning signs to consult near health facility on time without delay in clinical management, right medical management (antibiotics) and applying critical thinking for right interventions for critically neonate to save live.

5.2 RECOMMENDATION

According to our research done we suggest the following recommendation to:

Mibilizi district hospital

Hospital should provide trainings about management of neonatal sepsis to its staff members and all health care provider at hospital and health centers should improve health education especially about hygiene to the community areas an also to explore and increase beds as possible.

Kibogora polytechnic

Kibogora polytechnic should provide many out reaches in communities in order to educate them about the cause of neonatal sepsis and how they can prevent them. Kibogora polytechnic also should carry out many researches on neonatal sepsis as well as other neonatal health problem in order to improve the health neonates.

In addition Kibogora polytechnic should support all student projects by giving them funds that can help them to carry out their research projects.

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KIBOGORA POLYTECHNIC

FACULTY: HEALTH SCIENCE

DEPARTEMENT: GENERAL NURSING UPGRADING BACHELOR A0

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE OF NURSES IN THE MANAGEMENTS OF EARLY AND LATER NEONATAL SEPSIS AT MIBILIZI DH.

APPENDIX I : QUESTIONNAIRE

SECTION 1: SOCIO- ECONAMIC AND DEMOGRAPHIC DATA

1. Date: …...../……. /…..…….. Respondent No.: ……

2. District: ..... …… Sector: ……... Cell: …….

Village: ……

NB: **tick only in a box by using this symbol**√

3. AGE

a) between 22-30 years ☐
b) between 31-40 years ☐
c) above 41 years ☐

4. SEX

a.male ☐

b female ☐

5. level of study

a) A1 ☐
b) Ao ☐

c) masters ☐

d) All others ☐

6. Experience

a) less done 1 year ☐

b) between 1-5 year ☐

c) between 6-10 year ☐

d) Between 11-15 year ☐

e) Above 16 years ☐

SECTION 2: KNOWLEDGE, ATTITUDE AND PRACTICE OF NURSES IN NEONATAL SEPSIS

2.1 KNOWLEDGE ON NEONATAL SEPSIS

NB**: answer may be more than one**

7. What does neonatal sepsis means?

a. Blood infection ☐

b. Systemic infection occurs in infant less than 28 days ☐

c. It occurs in premature babies only ☐

8. What are the risk factors of neonatal sepsis?

a. Low birth weight ☐

b. Trauma ☐

C. Premature ☐

c. Antepartum hemorrhage ☐

d. I don't know ☐

9. What are the causes of neonatal sepsis?

a. H Influenza ☐

b. Group D streptococci ☐

☐

c. N.Gonorrhoeae

d. S.Pneumonia

E.All above

10. What are complications of neonatal sepsis?

a. Respiratory distress

b. CNS disturbance

c. Shock

d. Poor perfusion

11. What are medical management used in neonatal sepsis as first line?

a. Ampicillin-gentamicin

b. Ampicillin-cefotaxime

c. Cefotaxime-metronidazole

12.Is Fever one of Indicatorsof NeonatalSepsis?

a.Yes

b.No

13.How long neonate with severe sepsis last to antibiotics?

a. 20 days

b. 7 days

c. 3 days

d. 21 days

2.2 PRACTICE ABOUT NEONATAL SEPSIS

14. when to give health education about neonatal hygiene?

a. At antenatal visit ☐
b. Before and after delivery ☐
c. Before discharge premature who were hospitalized ☐
d. All above ☐

15.How long do you wash your hands?

a. 10-20 sec ☐
b. 20-30 sec ☐
c. 30-40 sec ☐

16.do you have enough space for hospitalization according to the rate of admissions

a. Yes ☐
b.No ☐

17. How do you prevent neonatal sepsis?

a. Hand washing ☐
b. Give health education about hygiene ☐
c. Umbilical cord care ☐
d. All above ☐

18.Do you remember to disinfect materials used, from case to next with alcohol? (Thermometer, oxygen meter, nasal prong of 02 or CPAP,)

a.yes ☐

b. No ☐

19.Do you separate infectious waste from non-infectious waste?

a.Yes ☐

b.No ☐

20. do you have enough handwashing sites in service with water, soap and drying tissue?

a. yes ☐

b. no ☐

ATTUTIDE ABOUT NEONATAL SEPSID

21. What can you do if you are admitting a neonate of D10 with O_2S:81% on room air RR:64b/m, TO:39.5 ^{O}C and has body weakness?

a. to encourage breast feeding ☐
b. Go to prepare D10 ¼ for the baby ☐
c. Give O2 as needed and call physician to review ☐
d. tell parents that it is severe sepsis ☐
e. I don't know ☐

22.How often do we monitor spo2, respiratory rate, temperature for a neonate with sepsis if he is unstable?

a.at least once in 30 min ☐
b.At least once hourly ☐
c.At least once in 2 hours ☐
d.We don't monitor him ☐

23.you are in ward alone and a neonate develop fever of 39^{o}c, poor breast feeding what do you do?

a. You give antipyretics ☐
b. You call physician to review ☐
c. To apply cold application ☐
d. A and C ☐

24.If you are assessing a neonate with sepsis and you want to assess another neonate without sepsis what do you do?

a. Hand washing ☐

b. Hand rubbing ☐

c. None ☐

25.Among the following challenges, what are challenges or barrier during your daily activities related to nursing management of neonatal sepsis?

a. shortage of trainings ☐

b. high cost of medication for clients ☐

c. shortage of space (beds, incubators) ☐

d. Ignorance of parents ☐

prepared and collected by

1. Louis MUKOTANYI…….
2. Rhadia MUGISHA…….

Done at mibilizi district hospital on 01/02/2022

II. INFORMED CONSENT

Dear Participant

Our names are LOUIS MUKOTANYI and MUGISHA RHADIA students at KIBOGORA POLYTECHNIC and we are currently undertaking a Bachelor of Science in Nursing Science degree. As a partial fulfilment of this nursing science degree, we are required to undertake a research study in the area of our specialty. Therefore, we are carrying out a study to assess knowledge, attitude and practice of nurses in the managements of early and later neonatal sepsis at mibilizi dh Especially in neonatology service.We are kindly requesting you to participate in our study, the information obtained will be treated in confidentiality, the findings of the study will be used to assessment of knowledge, attitude and practice of nurses in the managements of early and later neonatal sepsis at mibilizi dh.

We will personally conduct the questionnaire. You are assured that your identity will not be revealed at any time during the study or when the study is reported or published. The data collected will be coded. Please feel free to make your decision for participation or none participation since this decision will not affect the care given to you or your family as well as the relationship with the health providers. Your participation is voluntary and you are free to withdraw from the study at any time. If you agree to participate, please sign below. All the signed forms will be kept in locked cabinet only accessible to the Investigator and will be destroyed at the completion of the study. If you feel you need to communicate with us, our addresses are as follow:

The contact phone numbers are;

+250780358050(LOUIS MUKOTANYI) &

+250780739348 (RHADIA MUGISHA)

Participants Consent

I have read this consent Form and I voluntarily want to participate in this study.

Participant’s Signature..... Date.....

Investigator’s Signature..... Date.....

KIBOGORA POLYTECHNIC

Granted Accreditation and Legal Personality by the Ministerial Order N° 7/2015Official Gazette N° 03 of 19/01/2015 P.O.Box: 31 Rusizi-Rwanda Tel:(+250)280100759 E-mail:info@kp.ac.rw Website: www.kp.ac.rw

Student Dissertation Project's Letter

January,28th 2022

To whom it may concern

We write this letter to humbly request you to allow Mr/Mrs MUKOTANYI Louis& MUGISHA Rhadia (2000544&2000468) to conduct research in your organization/institution/territorial entity. The above mentioned are bonafide students of kibogora polytechnic pursuing bachelor's degree in general nursing department. These candidates are currently conducting a research entitled **"Assessment of Knowledge Attitude and Practice of Nurses in Management of Early and Later Neonatal Sepsis at Mibirizi District Hospital"**we are convinced that your organization/institution/territorial entity will constitute a valuable source of information pertaining to their research. The purpose of this letter is to humbly request you to avail them with the pertinent information they may need. We pledge to ensure that all provided information will be used in the strict academic purpose.

Any assistance rendered to the candidates will be highly appreciated.

Approved by:

Yours,

Dr Eleazar NDABARORA,Phd

Dean of Health Sciences

Kibogora Polytechnic