بِسْمِ اللهِ الرَّحْمَنِ الرَّحِيمِ

Shendi University

Faculty of Graduate Studies and Scientific Research

Assessment of Nurses Knowledge Regarding Neonatal Sepsis in Elmak Nimer University Hospital

A full thesis Submitted in Requirements of Partial Fulfillment for The Master's Degree in pediatric Nursing Science

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بسم الله الرحمن الرحيم

قال تعالي :

(وَالَّذِي أَطْمَعُ أَن يَغْفِرَ لِي خَطِيئَتِي يَوْمَ الدِّينِ *رَبِّ هَبْ لِي حُكْماً وَأَلْحِقْنِي بِالصَّالِحِينَ * وَاجْعَل لِّي لِسَانَ صِدْقٍ فِي الْآخِرِينَ * وَاجْعَلْنِي مِن وَرَثَةِ جَنَّةِ النَّعِيمِ)

صدق الله العظيم

سورة الشعراء(82-84)

I

Dedication

To

Who have taught me a lot through the life

Who trained me how I can change to better

Dear Father Alameen abd alrasoul ali

To

Who taught me what is the meaning of life dried my tear and filled my heart with

delight

Dear Mother omahanei Husain Mohammed

To

The deepest feeling who supported me always learn me to give even without take

Dear brother and sisters

To

Who have supported me on difficult steps of my life taught me the meaning of hope and

who lead me to the way of success

My teachers

My thanks are expanded to all of my colleagues and friends and every one support me

during this study and to all nurses in Elmek Nimer university hospital there are

cooperative with me to complete this research

Acknowledgement

First of all, I would like to say **Alhamdulillah**,

For giving me the strength and health to do this research work

until it done not forgotten to my family

I wish to express my sincere gratitude to the department of high

graduate nursing colleague, Shendi university, for providing me an

opportunity to do my

research on nursing knowledge about neonatal sepsis

I sincerely thank to my research guide

Dr. Lamya Altaieb

For guidance and encouragement in carrying out this research

ملخص الدراسة

أجريت هذه الدراسة بمستشفي الملك نمر الجامعي بمدينة شندي في الفترة من يوليو الي ديسمبر 2014 لتقييم معرفة الممرضين تجاه التسمم الدموي عند الاطفال حديثي الولادة تم جمع البيانات بواسطة استبيان يحتوي علي 19 سؤال وتم تحليل النتائج بواسطة برنامج التحليل الاحصائي وتم عرضها في شكل جداول وأشكال بيانية.

أظهرت الدراسة أن الغالبية العظمي من مجموعة الدراسة (72%) هم من حملة البكالوريوس مع مستوي خبره يتراوح من ثلاثة الي اربعه أعوام.

كما أوضحت الدراسة أن معظم مجموعه الدراسة لديهم معرفة جيدة عن التسمم الدموي عند الاطفال حديثي الولادة ، مصادر العدوي في التسمم الدموي المتأخر ،العلامات و الاعراض المفاجئه للتسمم الدموي عند الاطفال حديثي الولادة. كما أوضحت الدراسة أن نفس النسبه لديهم مستوي معرفه متوسط عن البكتيريا المسببة للحدوث المتأخر للتسمم الدموي أيضاً أظهرت الدراسة أن معظم مجموعه الدراسة لديها مستوي معرفه ضعيف عن وقت حدوث التسمم الدموي المبكر والمتأخر ،مصادر العدوي في الحدوث المبكر للتسمم الدموي ،عوامل الخطورة في الحدوث المبكر للتسمم الدموي ،اكثر المجموعات عرضه للاصابه بالتسمم الدموي، العلامات الخفية للتسمم الدموي عند حديثي الولادة ،والعلامات المبكرة للتسمم الدموي في الساعات الاولي بعد الولادة الاعراض التنفسية والعصبية القلبيه المصاحبه للتسمم الدموي عند حديثي الولادة.

أوصت الدراسة بضرورة زيادة الوعي والمعلومات عن التسمم الدموي عند الاطفال حديثي الولادة واستخدام التقنيات الجديدة للتعرف المبكر علي التسمم الدموي عند حديثي الولادة كما اوصت الدراسة الكادر بضرورة مواكبه التطور العالمي والمستجدات في مجال التعرف المبكر علي التسمم الدموي عند حديثي الولادة

Abstract

This study was done in Elmek Nimer university hospital in Shendi city. During period extend from July to December 2014 to assess nurse's knowledge about neonatal sepsis. The collection of information was done by questionnaire including 19 question.

The result was analyzed by SPSS then showed in form of tables and figures. The study showed majority of study group were bachelor education and their age group distributed between 25 to 30 years most of study group had 2 to 4 years of experience. Study showed that most of study group had good knowledge about neonatal sepsis, risk factor in late onset of sepsis, fulminant signs of neonatal sepsis . Also same percent of study group had average knowledge about :causative agent in late onset of sepsis and same percentage of study group have poor knowledge about: occurrence time, risk factor of early and late onset of neonatal sepsis, high risk groups of neonatal sepsis, subtle signs of neonatal sepsis, early signs in first hours after birth, common respiratory and neurological disorder associated with neonatal sepsis, common cardiac signs of neonatal sepsis.

Study recommended to make continuous theoretical and practical courses about neonatal sepsis and using of standard and newly tools to detect neonatal sepsis as early as possible.

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Introduction

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Introduction

Typically, nursing assessment approaches are described in terms of the nurses' experiences, intuition, judgments, relationships and facts in the daily assessment of newborns. nursing epistemology informed the discipline with distinct patterns of knowing that provide a framework for systematically studying nurses' approaches to assessing.

Any way of knowing potentially may play a role in the nurse's approach to assessing infants for signs of infection nurses have the professional responsibility to assess newborns for signs of sepsis **(Cowling, 2001**).

Nurses in the nursery or in couplet care must become proficient at assessment and clinical decision making to effectively decide if a newborn is showing signs of infection. The nurse's assessment skills can be supplemented with a systematic measurement tool to identify early signs of sepsis in the newborn period. The well baby nurses or couplet care nurses assess newborns during the first 24 to 72 hours of life prior to discharge.

The nurses in the NICU must observe for signs of infection during the infant's extended hospital stay. The NICU nurses must have proficient assessment skills to predict early-onset or late-onset sepsis in the newborns. (**Stoll BJ.2005**).

Neonatal sepsis is one of the important causes of neonatal morbidity and mortality particularly in the developing countries . Neonatal sepsis is classified into early or late according to the different ages at onset of infection during the neonatal period (**Mc.donnell .2002**)

The clinical relevance of this distinction is that early-onset disease is often due to organisms acquired during delivery while, late-onset disease is more frequently caused by organisms acquired from nosocomial or community sources (**Cowling (2001**).

In developing countries, neonatal mortality defined as deaths in the first 28 days of life per 1000 live births, from all causes is about 34; most of these deaths occur in the first week of life, most on the first day (**WHO 2010**). In contrast, neonatal mortality for developed countries is in the region of five. Neonatal mortality in Asia is about 34, in Africa about 42, and in Latin America and the Caribbean about 17 Deaths occurring in the neonatal period each year account for 41% (3.6 million) of all deaths in children under 5 years. The majority of these deaths occur in low income countries and almost 1 million of these deaths are attributable to infectious causes including neonatal sepsis, meningitis and pneumonia. (**Zaidi AK 2009**)**.**

The infant mortality rate in Sudan is estimated at 81 per 1000 live births and about half of those are neonatal deaths that occur during the first month of life (**Sudanese Government of National Unity 2002**). Neonatal deaths are caused mainly by asphyxia, preterm birth and sepsis.

Justification

Neonatal sepsis is one of the important causes of neonatal morbidity and mortality particularly in the developing countries also there is a lack of direct recognition of children with neonatal sepsis (**Zaidi AK- 2009).** because of this issues this study was designed to assess nursing knowledge about neonatal sepsis

Objectives

General objective:

Assessment of nurses knowledge regarding neonatal sepsis in Elmek Nemir university hospital.

Specific objective:

- To assess the knowledge of nurses about neonatal sepsis
- To identify nurses knowledge about causative agent and risk groups of neonatal sepsis
- To identify nurses knowledge about early signs of neonatal sepsis

Chapter Two

Literature Review

Literature review

Definition of sepsis:

Sepsis is a potentially life-threatening complication of an infection. Occurs when chemicals released into the bloodstream to fight the infection trigger inflammatory responses throughout the body. This inflammation can trigger a cascade of changes that can damage multiple organ systems, causing them to fail

Neonatal sepsis:

Neonatal sepsis is invasive infection, usually bacterial, occurring during the neonatal period **(Kirsten.E.Crowely 2005).**

Etiology:

Sepsis may be categorized as early or late onset. 58% of newborns with early-onset infection present within 24 hours, 5% present at 24-72 hours, early onset sepsis syndrome is associated with acquisition of microorganisms from the mother. Tran placental infection or an ascending infection from the cervix may be caused by organisms that colonize in the mother's genitourinary tract, with acquisition of the microbe by passage through a colonized birth canal at delivery (**Stoll BJ.2005**). The microorganisms most commonly associated with early-onset infection include:

Group B Streptococcus (GBS), Escherichia coli, coagulase-negative Staphylococcus, Haemophilus influenzae, and Listeria monocytogenes

(lidk.Armstrong 2008).

Late-onset:

Late-onset sepsis syndrome occurs at 4-90 days of life and is acquired from the care giving environment. Organisms that have been implicated in causing late-onset sepsis syndrome include:

Coagulase-negative staphylococci, Staphylococcus aureus, E coli, Klebsiella, Pseudomonas, Nitrobacteria, Candida, GBS, Serratia, Acinetobacter, and

anaerobes. Trends in late-onset sepsis show an increase in coagulase-negative Streptococcal sepsis (**Yancey,(2002)**.

The infant's skin, respiratory tract, conjunctivae, GI tract, and umbilicus may become colonized from the environment, leading to the possibility of late-onset sepsis from invasive microorganisms. Vectors for such colonization may include vascular or urinary catheters, other indwelling lines, or contact from caregivers with bacterial colonization **(Stoll BJ 2005).**

Pneumonia is more common in early onset sepsis, whereas meningitis and bacteremia are more common in late-onset sepsis. Premature and ill infants have an increased susceptibility to sepsis.

Risk groups:

Race:

Black infants have an increased incidence of GBS disease and late-onset sepsis. This is observed even after controlling for risk factors of low birth weight and decreased maternal age.

Sex:

The incidence of bacterial sepsis and meningitis, especially for gram-negative enteric bacilli, is higher in males than in females.

Age:

Premature infants have an increased incidence of sepsis. The incidence of sepsis is significantly higher in infants with very low birth weight (<1000 g), at 26 per 1000 live births, than in infants with a birth weight of 1000-2000 g, at 8-9 per 1000 live births. The risk for death or meningitis from sepsis is higher in infants with low birth weight than in full-term neonates (**ZaidI AKM, .2009)**

History:

The most common risk factors associated with early onset neonatal sepsis include maternal group B Streptococcus (GBS) colonization (especially if untreated during labor), premature rupture of membranes (PROM), prolonged rupture of

membranes, prematurely, maternal urinary tract infection, and chorioamnionitis **(Stoll BJ-2005)**. Other factors associated with or predisposing to early onset neonatal sepsis include:

Low Apgar score (<6 at 1 or 5 min), maternal fever greater than 38°C, maternal urinary tract infection, poor prenatal care, poor maternal nutrition, low socioeconomic status, recurrent abortion, maternal substance abuse, low birth weight, difficult delivery, birth asphyxia, meconium staining, and congenital anomalies. Risk factors implicated in neonatal sepsis reflect the stress and illness of the fetus at delivery, as well as the hazardous uterine environment surrounding the fetus before delivery.

Late onset sepsis is associated with the following risk factors prematurely, central venous catheterization (duration of >10 d), nasal cannula or continuous positive airway pressure (CPAP) use, H2 blocker/proton pump inhibitor use, and gastrointestinal tract pathology **(Yancey. (2002).**

Signs of Sepsis:

Early-onset infection appears in the first week of life. Most infants display signs of infection within the first 24 to 48 hours, and about half are symptomatic at birth (**Mc.donnell .2002**). Initial signs of sepsis in newborns can be fulminant or subtle.

Fulminant signs:

Form of neonatal sepsis presents with poor perfusion, shock, respiratory distress and increased bleeding times, and often leads to death **(Philip A.G 2009).** This form of sepsis is easier to diagnose due to the overwhelming array of signs indicative of sepsis.

Subtle signs of sepsis.

Neonatal nurses and physicians frequently have difficulty assessing and diagnosing sepsis from the initial, subtle signs of infection. The infant with sepsis may first present with "just not doing well". Infants with subtle signs may appear

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well initially, with a slow progression of respiratory signs including mild tachypnea, soft grunting, mild retractions and progressive cyanosis. These are also initial signs of many respiratory disorders in the newborn, like transient tachypnea or pneumonia. Other subtle signs of sepsis are a decrease in temperature, decreased responsiveness, vomiting, or pale color (**Snapp 2013**).that "almost all infants with bacterial infection within the first few hours after birth will have one of the following symptoms: lethargy, apnea, seizures, hypothermia, hyperthermia, hypoglycemia, impaired cardiac output, respiratory distress, or poor feeding" the most common finding is a lethargic infant with a poor suck and unstable temperature. These signs are common in many normal newborns and in newborns with the common problems of hypothermia, hypoglycemia or respiratory distress, and are not limited to infants with sepsis. Yet a nurse is expected to distinguish signs of sepsis in newborns.

Clinical signs according to body systems:

The clinical signs:

Sepsis are nonspecific and are associated with characteristics of the causative organism and the body's response to the invasion These nonspecific clinical signs of early sepsis syndrome are also associated with other neonatal diseases, such as respiratory distress syndrome (RDS), metabolic disorders, intracranial hemorrhage, and a traumatic delivery. Given the nonspecific nature of these signs, providing treatment for suspected neonatal sepsis while excluding other disease processes is prudent.

Respiratory signs:

Bacterial pneumonia and intrauterine infection: Inflammatory lesions are observed postmortem in the lungs of infants with congenital and intrauterine pneumonia. This may not be caused by the action of the microorganisms themselves but may be caused by aspiration of amniotic fluid containing maternal leukocytes and cellular debris. Tachypnea, irregular respirations, moderate

retracting, apnea, cyanosis, and grunting may be observed. Neonates with intrauterine pneumonia may also be critically ill at birth **(Siggel. GD 2007).** Congenital pneumonia and intrapartum infection: Neonates who are infected during the birth process may acquire pneumonia through aspiration of the microorganisms during the delivery process.

- **Cardiac signs**:

    In overwhelming sepsis, an initial early phase characterized by pulmonary hypertension, decreased cardiac output, and hypoxemia may occur .

- **Metabolic signs**:

    Hypoglycemia, hyperglycemia, metabolic acidosis, and jaundice all are metabolic signs that commonly accompany neonatal sepsis syndrome. .

- **Neurologic signs:**

    Bacterial Meningitis is the common manifestation of infection of the CNS

    - Lethargy
    - Irritability
    - Seizures.

    (Nyhan.W.L-2008)

Investigations for neonatal sepsis:

General investigations:

These include parameters important in assessment of general wellbeing of the infant including:

- Blood gases
- Serum electrolytes
- True blood glucose

Infection related tests (Septic Workup):

Non-specific markers C-reactive protein (CRP):

CRP rises approximately 12 hours after onset of sepsis and returns to normal within 2 to 7 days of successful treatment

Full blood examination (FBE):

- Neutropenia in the face of confirmed sepsis can indicate that the baby is extremely unwell.

A raised immature to total white cell ratio (I:T ratio > 0.3) is about 85 % sensitive and specific - particularly for early onset sepsis (**Philip, A. G., & Hewitt, J. R.2009) .**

Tests to identify the infective organism:

For early onset sepsis

- Blood culture (if possible). Do not delay treatment if you cannot obtain cultures in an unwell baby.

- Lumbar puncture (LP) should be performed where the 'index of suspicion' of meningitis is high ie abnormal conscious state or seizures.

- LP may need to be delayed until after the infant's condition has stabilized sufficiently to tolerate the procedure and abnormalities of coagulation status have been controlled.

- If the initial blood culture is positive. LP must be performed to exclude meningitis since the presence of meningitis alters the length of antibiotic treatment as well as prognosis. A lumbar puncture may still be useful within four hours of commencing antibiotics as growth may still occur.

- There is little to be gained from performing urine aspiration for culture as haematogenous spread is the mechanism behind positive urine cultures in the first few days of life.

- For late onset sepsis.

- Blood cultures (if possible). Do not delay treatment if you cannot obtain cultures in an unwell baby.

- SPA specimen of urine should be obtained as a primary UTI is not uncommon as a cause of sepsis after 5 days of age.

- The role of LP in late onset sepsis is controversial and depends on the clinical setting. A lumbar puncture may still be useful within four hours of commencing antibiotics as growth may still occur.

(**McCoy S.T 2001**).

Management:

Place of care:

The baby with confirmed sepsis should be managed in the Special Care Nursery (SCN) where they can be observed closely. (**McCoy, S. T. 2001**).

General measures:

- In addition to the administration of antibiotics, great attention to supportive care is needed.
- Antibiotics should be considered as only part of the management of a septic neonate.

General:

- Thermal care
- Incubator nursing
- Phototherapy if warranted
- Monitoring of oxygen saturation, heart rate and blood pressure.

Respiratory:

- Support for apnea
- Hypoxia,
- Hyper apnea,
- Respiratory distress

Cardiovascular:

- Plasma volume expanders (normal saline - 10 to 20 ml/kg initially).
- Correction of fluid, electrolyte, glucose and hematological derangements (including blood, platelets and clotting factors)
- The unstable baby usually needs enteral feedings with held .

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Antibiotic choice:

- Given the usual causative organisms the following regimes are recommended initially.
- Antibiotic choice can then be rationalized on the basis of culture results and clinical course
- Early onset sepsis.
- Benzyl penicillin - 60mg/kg IV 12 hrly.120mg/kg/dose 12 hrly if meningitis suspected.
- Gentamicin - 5 mg/kg IV 36 hrly if >=1200g, 48hrly if <1200g.

Note: both can be given IM if IV access is not possible but this is not preferable for ongoing care: an Umbilical venous catheter should be considered.

- If history or clinical appearance suggests the possibility of Listeria, amoxicillin 50mg/kg IV 12hourly can be used instead of benzyl penicillin (Garland . 2012)...

Treatment of meningitis

Until sensitivities are known:

- Cefotaxime - 50mg/kg/dose 12 hourly for preterm babies or term babies in the first week of life, 8 hourly after that time
- Amoxicillin - 50mg/kg/dose 12 hourly for preterm babies or term babies in the first week of life, 8 hourly after that time

Late onset sepsis:

- Flucloxacillin and Gentamicin are the usual first choice antibiotics except in suspected septic shock due to Gram negative organism . use Vancomycin, Gentamicin +/- Vancomycin
- Meningitis use Amoxicillin and Cefotaxime.
- Necrotizole enterocolitis use Amoxicillin, Gentamicin metronidazole.

- Vancomycin Dose.

The dose chosen needs to be guided by the clinical picture and age of patient, and adjusted according to trough levels.

- **IV**: Loading dose of 15 mg/kg then.
- **Preterm:** 10 mg/kg/dose 24 hrly.
- **Term**: Week 1 of life: 10 mg/kg/dose 12 hrly Week 2-4 of life: 10 mg/kg/dose 8 hrly.
- **Severe infections**:

Gentamicin. 5 mg/kg 36hrly for term babies <= 7days, 24hrly if > 7days. Crokett 1995.

Flucloxacillin. 25mg/kg/dose 12 hourly for preterm babies or term babies in the first week of life, 6-8 hourly after that time.

Doses of antibiotics need to be adjusted for age of the baby and on the basis of levels in the case of gentamicin and vancomycin. Refer to drug protocols for monitoring guidelines.

An aminoglycoside other than gentamicin may be used in some hospitals at times depending on the profile of prevalent organisms. Cole 1998.

Chapter Three

Methodology

Methodology

Study design:

This study was descriptive, cross sectional, hospital based research, done in period extended from June - to- December 2014 to assess nurses knowledge about early signs of neonatal sepsis

Study area:

This study was done in Shendi town which is located 172 km north to Khartoum city; it is southern part of the river Nile stat covering area of 30 km square. There are different center for general services , also consist of many hospital such as Shendi teaching hospital, military hospital and Elmek Nimer university hospital.

Study sitting :

This study was done in Elmek Nimer university hospital which was established in July 2002.and consist of different and specialist part for producing medical and nurses care, there are 123 nurses in the hospital distributed on deferent medical department inside the hospital.

Study population:

This study includes all nurses in pediatric department and NICU in Elmek Nimer university hospital during the period of study.

Sampling and technique:

All nurses working in pediatric, nursery , obese department during study period

Data collection tools:

The data was collected by questionnaire designed by the researcher based on available literature review composed of (19) closed ended questions.

The part 1 of question: was developed to collect data about socio demographic data and it contain:

- Age ,sex, level of qualification and years of experience

Part 2: was developed to collect data about: definition and causative agent of neonatal sepsis

Part 3 was developed to collect data about: high risk groups , risk factor , early signs   and Common associated disorder with neonatal sepsis.

Data analysis technique:

Data was analyzed by using SPSS (statistical package of social science).and presented in form of figures and tables

Ethical consideration:

The study is approved by faculty committee researcher. The original director and the head nurses of the hospital to permit to conduct the research a permission have been taken from original director of the hospital and then head nurses.

The researcher explain the purpose of the study to the nurses participant and has the choice to continue or stop at any time

Chapter Four

Results

Results

Table (1): Distribution of study group according to their sociodemographi data (sex –age –level of qualification – years of experience)

Age	Frequency	Percent
20-25 year	11	22%
25 – 30 year	32	64%
More than 30	7	14%
Total	50	100%
Sex	**Frequency**	**Percent**
Female	44	88%
Male	6	12%
Total	50	100%
Level of qualification	**Frequency**	**Percent**
Diploma	1	2%
Bachelor	40	80%
Master	9	18 %
Total	50	100%
Years of experience	**Frequency**	**Percent**
1-2 years	15	30%
2-4 years	24	48%
More than 4 years	11	22 %
Total	50	100%

This Is tables showed that most of study group(88%) was females and more than half (64%) of them their age group distributed between 25-30 year old also most of them (80%) their certificate was bacheloria .and less than half (48%) of study group had 2 to 4 years of experience .

Table (2) Distribution of study group according to their knowledge about neonatal sepsis

Knowledge about neonatal sepsis	Frequency	Percent
Inflammatory response to bacterial agent	5	10%
Important cause of morbidity and mortality among newborn	4	8%
It is clinical syndrome in infant manifestoes by signs of infection	5	10 %
All of the above	36	72%
Total	50	100 %

This table showed that tow third (72%) of study group was knowledgeable about neonatal sepsis.

Table (3) Distribution of study group according to their knowledge about causative agent of early onset of neonatal sepsis.

Common causative agent of early onset of neonatal sepsis	Frequency	Percent
G B streptococci	10	20 %
staphylococcus aurous	40	80%
Total	50	100

This Tables revealed that   most (80%) of study group had poor knowledge about causative agent in early onset of sepsis

Table (4) Distribution of study group according to their knowledge about causative agent of late onset of neonatal sepsis

common causative agent of late onset neonatal sepsis	Frequency	Percent
co aguolus negative staphylococcus	21	42%
Staphylococci aures	13	26%
E.colli	16	32%
Total	50	100 %

This Tables clarified that less than half (42%) of study group had good knowledge about causative agent in late onset of neonatal sepsis

Table (5) Distribution of study group according to their knowledge about time of infection (incidence time) of early onset of neonatal sepsis:

early onset of neonatal sepsis occur at	Frequency	Percent
1 - 3 days from birth	5	10%
3-7 days	6	12%
Morethan7day	39	78 %
Total	50	100%

This Table showed that majority (90%) of study group had poor knowledge about incidence time in early onset of sepsis.

Table (6) Distribution of study group according to their knowledge about occurrence time late onset of neonatal sepsis:

late onset of neonatal sepsis occur	Frequency	Percent
More than 3 days of birth	5	10%
More than 7 days	5	10%
More than month	40	80%
Total	50	100%

This Table showed that most (80%) of study group had poor knowledge about incidence time of late onset of sepsis

Table (7) Distribution of study group according to their knowledge about the cause of infection in early onset of neonatal sepsis:

Source of infection in early onset of neonatal sepsis	Frequency	Percent
Mother with UTI and don't receive antibiotic in last trimester	21	42%
Un vaccinated pregnant mother	11	22%
Un sterile nursery environment	18	36 %
Total	50	100%

This table showed that more than half (64%) of study group had poor knowledge about cause of infection in early onset of sepsis

Table (8) Distribution of study group according to their knowledge a about source of infection in late of neonatal sepsis

Source of infection in late onset of neonatal sepsis	Frequency	Percent
Local nursery environment	5	10%
NG tube ,end tracheal tube	5	10%
b-Infection through umbilical cord	5	10 %
All of the above	35	70%
Total	50	100%

This is table showed that tow third (70%) of study group had good knowledge about source of infection in late onset of sepsis.

Table (9) Distribution of study group according to their knowledge about risk factor in early onset of neonatal sepsis:

Risk factor in early onset of neonatal sepsis except	Frequency	Percent
Premature rupture of membrane (PROM)	15	30%
Maternal UTI	15	30%
Suzerain section	20	40 %
Total	50	100%

This Tables showed that more than half (60%) of study group had poor knowledge about risk factor in early onset of sepsis

Table (10) Distribution of study group according to their knowledge about the most serious risk group of neonatal sepsis:

Most serious risk groups of neonatal sepsis	Frequency	Percent
Premature baby	29	58%
Low birth weight baby	2	4%
Very low birth weight baby	19	38%
Total	50	100%

This table showed that more than half (62%) of study group had poor knowledge about risk groups in neonatal sepsis

Table (11) Distribution of study group according to their knowledge about fulminate signs of neonatal sepsis:

Fulminant signs of neonatal sepsis	Frequency	Percent
Shock	5	10%
Respiratory distress	6	12%
Increased in bleeding time	3	6 %
All of the above	36	72%
Total	50	100%

This is table showed that two third (72%) of study group was knowledgeable about fulminate signs of neonatal sepsis.

Table (12) Distribution of study group according to their knowledge about subtle signs in neonatal sepsis:

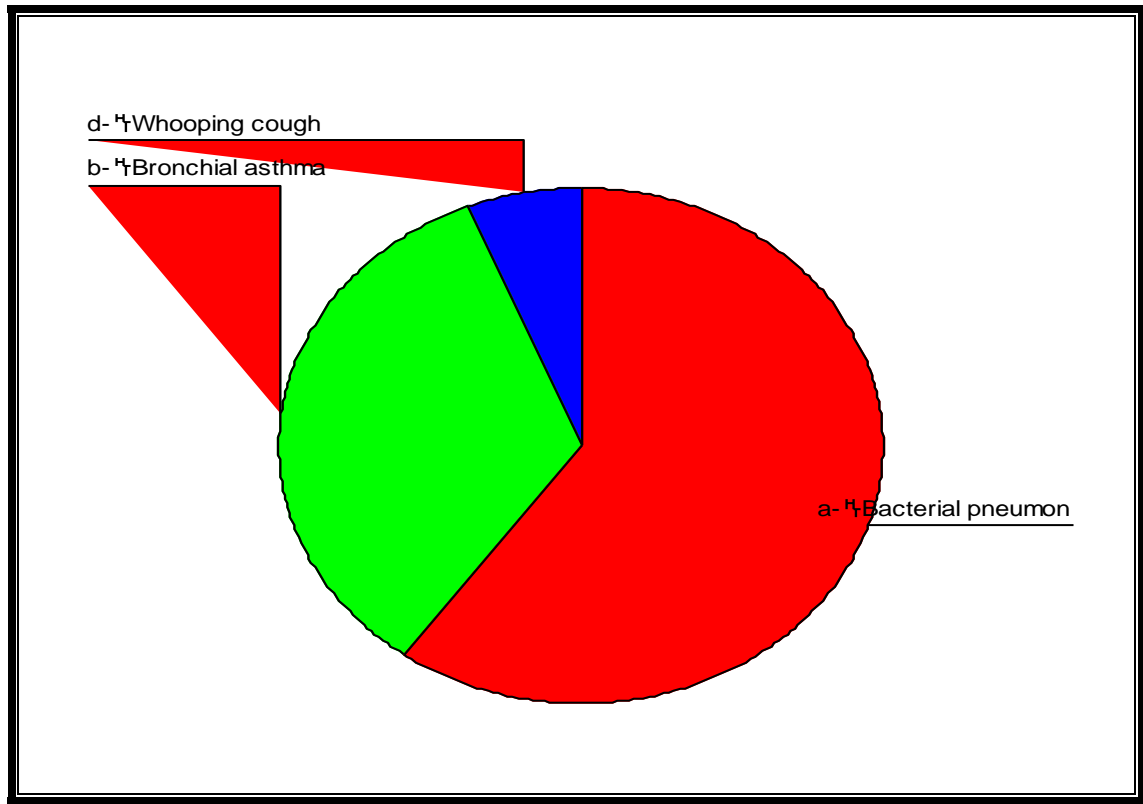| Infants with subtle signs may appear	Frequency	Percent
well initially, with a slow progression of respiratory signs	20	40%
Confused	14	28%
Sever retraction and generalized cyanosis	16	32 %
Total	50	100%

This table showed that more than half (64%) of study group had poor knowledge about subtle signs of neonatal sepsis.

Table (13) Distribution of study group according to their knowledge about first signs of bacterial infection in first few hours after birth:

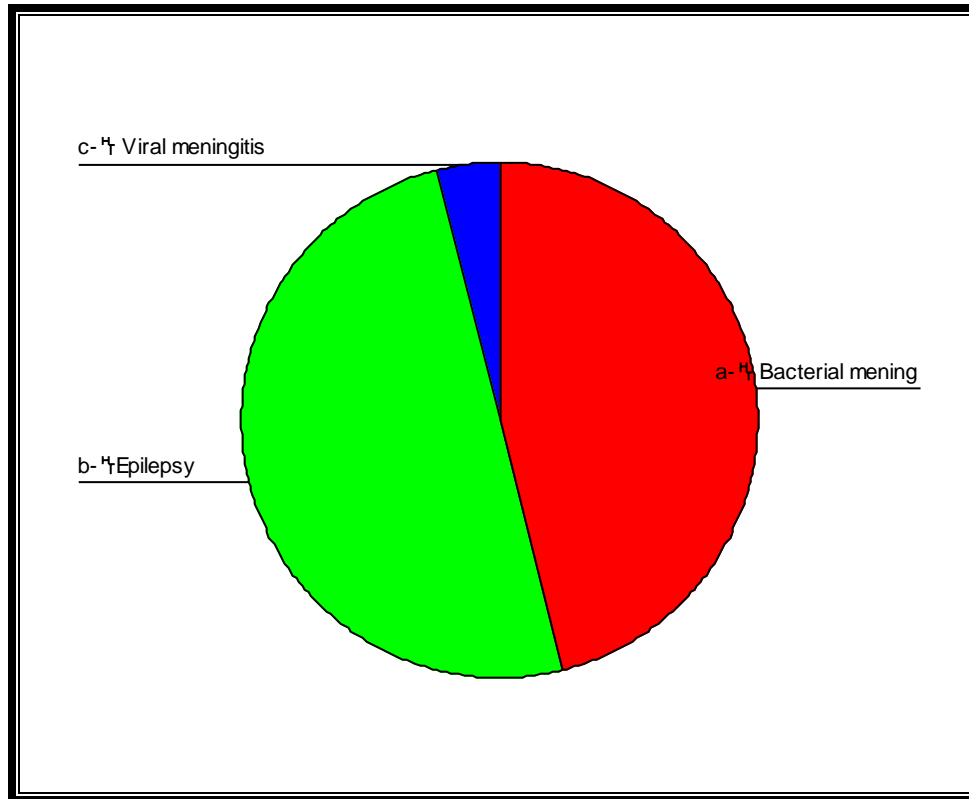| First signs of bacterial infection in first few hours after birth	Frequency	Percent
Lethargy ,apnea	6	12%
Hypothermia ,hyperthermia	15	30%
Hypoglycemia	8	16 %
All of the above	21	42%
Total	50	100%

This Table showed that more than half (58%) of study group had poor knowledge about first signs of sepsis during first hours after birth .

Distribution of study group according to their knowledge about common respiratory disorder associated with neonatal sepsis


d- ٍWhoopingcCough
b- ٍBronchial asthma
a- ٍBacterial pneumon

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This graph showed more than half (68%) of study group have good knowledge about common respiratory disorder associated with neonatal sepsis.

Distribution of study group according to their knowledge about common neurological disorder associated with neonatal sepsis

This graph showed more than half (60%) of study group have poor knowledge about common neurological disorder associated with neonatal sepsis

Distribution of study group according to their knowledge about common cardiac sibns associated with neonatal sepsis
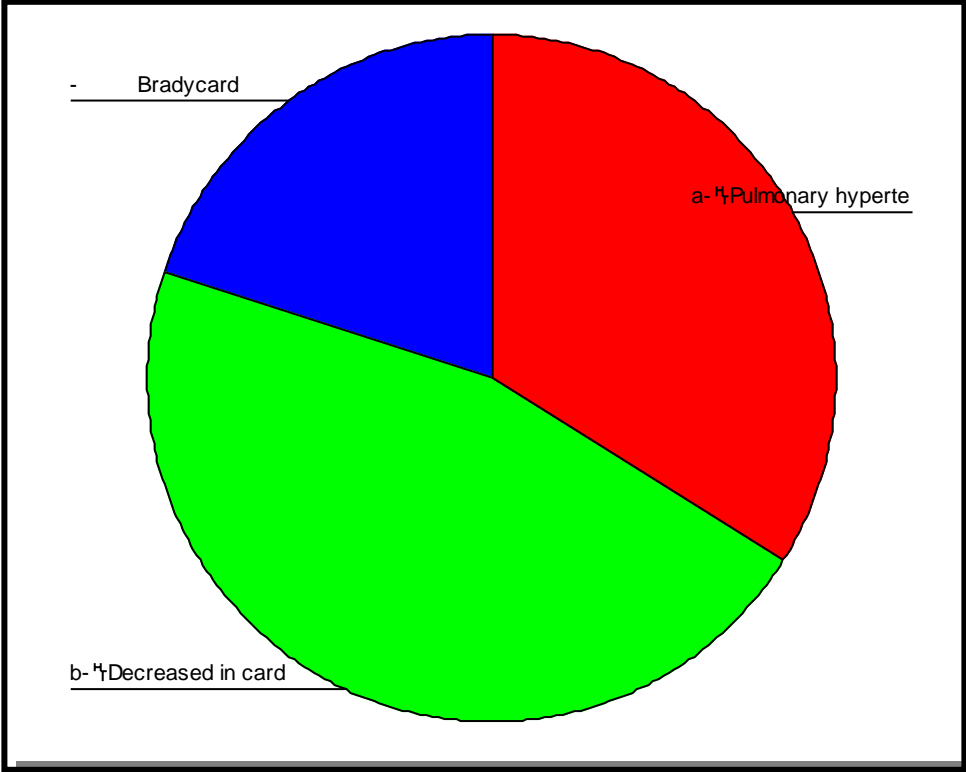
This graph showed most of study group have poor knowledge about common cardiac signs associated with neonatal sepsis

Chapter Five

Discussion

Conclusion

Recommendations

Discussion

The result of current study which was conducted in Elmek Nemir university hospital in period from June to December 2014 to assess nurses knowledge about neonatal sepsis represents the following:

Around two third (72%) of study group had good knowledge about neonatal sepsis this is agree with **(Kirsten.E.Crowely 2005)** define neonatal sepsis as: Neonatal sepsis is invasive infection, usually bacterial, occurring during the neonatal period.

Also study showed most (80%) of study group have poor knowledge about causative agent of early onset of neonatal sepsis and this is disagree with (**LIDK.Armstrong.2008**) (the most causative agent of neonatal sepsis is Gram positive staphylococcus) and Less than half (42%) of study group have average knowledge about causative agent in late onset of neonatal sepsis this is disagree with(**Yancey, (2002**).)which discussed: (most causative agent in late onset of neonatal sepsis is co aguolus negative staphylococcus) in other side Study showed majority (90%) of study group have poor knowledge about incidence time of early onset of sepsis this is disagree with (**Mc.Donnell2002**) (early onset of sepsis occur in first 72hours after birth) and most (80%) of study group had poor knowledge about incidence time of late onset of neonatal sepsis this is disagree with (**Yancy2002**) (late onset of neonatal sepsis occur after 3 days from birth).

Also study showed more than half (64%) of study group had poor knowledge regarding source of infection in early onset of sepsis this is disagree with (**Stoll BJ 2005**) (local nursery invironment is source of infection in late onset of sepsis) and seventy percent of study group had good knowledge about the source of infection in late onset of sepsis . this is agree with(**Stoll BJ 2005**) (local nursery environment, infection through the umbilical cord, NG tube, IV lines ,catheterization all is source of infection in late onset of sepsis).

In other side study clarify that more than half (60%) of study group had poor knowledge about risk factor in early onset of sepsis this is disagree with **((Stoll BJ-2005**.) (pre mature rupture of membrane PROM and maternal with UTI is risk factor for neonatal sepsis ,Also study discussed more than half(60%) of study group have poor knowledge about serous risk group of neonatal sepsis this is disagree with (**Zaidi AKM, .2009)** (very low birth wight is most serious risk groups to having neonatal sepsis), Also study showed seventy two percent of study group have good knowledge about fulminate signs of neonatal sepsis this is agree with (PHILIP A.G 2009) (respiratory distress, increase in bleeding time , shock . all is fulminate signs of neonatal sepsis) and more than half (60%) of study group of have poor knowledge about subtle signs of neonatal sepsis .this is agree with **(Snapp 2013)** (infant with subtle signs of sepsis may appear will initially with slow progression of respiratory signs) Also study showed more than half (68%) of study group have poor knowledge about first signs of sepsis in first few hours after birth this is disagree with **(Snapp 2013**) Which is discussed (lethargy, apnea. hypo or hyper thermeia, hypoglycemia, impaired in cardiac out but all is first signs of sepsis in first hours after birth) and more than half(60%) of study group have good knowledge about common associated respiratory disorder with neonatal sepsis this is agree with (**SiggleG.D 2002)** (bacterial pneumonia is common respiratory disorder associated with neonatal sepsis).

Also study is clarifying more than half (62%) of study group had poor knowledge about common neurological disorder associated with neonatal sepsis this disagree with (**Escobar, G. J. 2004**). (Bacterial meningitis is common neurological disorder associated with neonatal sepsis).

Finally study showed more than half (66%) of study population have poor knowledge about cardiac signs associated with neonatal sepsis this is disagree with (**Nyhan.W.L 2008)** (Pulmonary hypertension is most cardiac signs associated with neonatal sepsis).

Conclusion

The current study which was conducted in Elmek Nemir hospital in period from June to December 2014 to assess nursing knowledge about neonatal sepsis concluded the following**:-**

Most of study group had knowledgeable about neonatal sepsis most of study group had poor knowledge about causative agent, incidence time of early and late onset of neonatal sepsis and signs of neonatal sepsis.

Recommendations

Based on finding of the current study which was conducted in Elmek Nemir hospital in period from June to December 2014 to assess nursing knowledge about neonatal sepsis recommended the following.

To hospital manager

To make continuous theoretical and practical courses about neonatal sepsis by using routine discussion conference and multimedia access to increase information about this topic.

To nursing staff in NICU.

using of standard and newly tools to detect neonatal sepsis as early as possible .

Chapter Six

References

Appendix

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