"A cross sectional study to Assess the Knowledge and Practice of the Nurses regarding Neonatal Sepsis at Allied Hospital Faisalabad"

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Abstract

Objective: To determine the knowledge and practice of the nurses regarding Neonatal sepsis in Allied Hospital Faisalabad.

Methodology: cross sectional study was conducted in Allied Hospital Faisalabad, all staff nurses were included 50, were taken with their history and observational data collected to assess the knowledge and practice of the staff nurses. Questionnaire was use as data collection tool. Data were analyzed through SPSS.

Results: over burden, home delivery, less facilitates of save place, poor conduction method of delivery, not available of enough staff nurses according to the neonate's ratio, low knowledge of use of antiseptic techniques of procedure, less practice of hand washing are the factors of neonate's sepsis in Allied Hospital Faisalabad.

Conclusion: majority of the have the knowledge of neonate's sepsis but have less staff nurses over burden of patients, less facilities of proper space of neonates, poor conduction method of deliveries at home have a big source of neonate's sepsis.

Key words: neonates, neonatal sepsis, EOS, LOS

Introduction:

Neonatal sepsis is a type of neonatal contamination and explicitly refers to the presence in a newborn baby of a bacteriological blood stream infection (BSI) (such as meningitis, pneumonia, pyelonephritis or gastroenteritis) in the setting of temperature. Older textbooks may refer to neonatal sepsis as "sepsis neonatorum". Neonatal sepsis is divided into two categories. Early onset sepsis (EOL), and late onset sepsis (LOS). EOS refers to sepsis presenting in the first 7 days of life (although some refers to EOS as within 72 hours of life), with LOS referring to presentation of sepsis after 7 days of life (or 72 hours, depending on the system used). Neonatal sepsis is the single most common cause of neonatal death in hospital as well as community in developing country. 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. LOS is associated with acquisition of microorganisms from the septic place of delivery. Used septic instrument in delivery. Closed space of newborn baby when they admitted in hospital. Touch the newborn with infected hand.

Literature Review:

This study was showed in the neonatal intermediate care unit (NIMCU) of Kanti Children Hospital (KCH), Maharajgunj Kathmandu, Nepal, over one-year Sep 2008 to Aug 2009, by Dr. Nisha Jyoti Shrestha, and Dr. Kalpana Upadhya Subedi. That explained in this study neonatal sepsis is a major cause of infant's mortality and morbidity. There are many factors that contribute to neonatal sepsis but some are specific organisms cause Early onset sepsis (EOS) and Late onset sepsis (LOS). Late onset sepsis (LOS) is more common than Early onset sepsis (EOS), Escherichla Coli were the main reason of Early onset sepsis (EOS) and Late onset sepsis (LOS). Staphylococcal aureus very common in Late onset sepsis (LOS).(Shrestha, Subedi et al. 2011).

This study was steered in American Journal of critical care in 2013 By Ruth Kleinpell, Leanne Aitken, and Christa A. Schorr. The author deliberates in this study that sepsis is a solemn worldwide health care disorder related with high mortality rate and enhancement in the ability of management of staff nurses regarding neonatal sepsis. The writer described the changed process of contagion rheostat and sepsis organization in this study and infection control methods include hand hygiene, catheter care, head of bed elevation, inclusive oral care and other care to avoid more problem.(Kleinpell, Aitken et al. 2013).

This is a cross sectional study was conducted between Nov 2014 to Jan 2015 in governmental hospital in North west by Fashafsheh, Imad; Ayed, Ahmad; and lubna. The writer explained in this study that many causes of infection Nosocomial infection (NI), hospital acquired infection and health care associated infection (HCAI) occur during the process of care. Discuss the transmission of infectious agents. The writer discusses the many infection control method such as hand hygiene. A study was explained to the knowledge and practice of hand hygiene and conduct promotion programmed on proper uses of hand hygiene and increased the knowledge and practice of staff nurses.(Fashafsheh, Ayed et al. 2015).

This study was conducted in Aziz Fatima hospital Faisalabad by Tahir Mahmood, Javed, and Farah Amir Ali. January 2013 to January 2015. The author explained in this study that septicemia is the greatest dominant disease in neonates. This study was conduct for the early diagnose of sepsis and the purpose of this study to classified the infection through microbial mediators through the blood culture. Escherichia Coli is the biggest reason of infants' infection shown in this study. The author explained the prevention of sepsis through antibiotic, prevent spread of germs in this study.(Mahmood, Javed et al. 1912).

Methodology:

Study Design:

Descriptive cross-sectional design.

Study Area:

Allied Hospital Faisalabad was a site and Neonatal unit No#1 was setting.

Duration of study

Study was carried out in 16 weeks (January 2019 to April 2019)

Data source:

Search engines

- Google scholar
- PubMed
- Books

Study population:

Staff nurses of neonatal unit of Allied Hospital Faisalabad.

Sample Technique:

A convenient sample of 50 people has been selected by direct observation for this study. Convenient sample are inexpensive, accessible and usually less time consuming. This method is commonly used in health care setting.

Inclusion and Exclusion Criteria:

Inclusion Criteria.

- Staff Nurses of Neonatal Care Unit (NNCU) of Allied Hospital Faisalabad.
- Staff Nurses of pediatric ward of Allied Hospital Faisalabad.

Exclusion criteria:

- Staff nurses.
- students' nurses.
- midwifery students.

Data collection tool:

Data collection tool used in this study was a quantitative structured questionnaire distributed to participants. This questionnaire was based on two categories. Demographic questions, questions for knowing the contributing factors. It includes the participants, age, education, occupation, religion, knowledge about antenatal care and other relevant factors. After that the answers of questions noted and analyzed.

Pilot study:

Pilot study was done on 10% of sample size.

Issues of Reliability and Validity:

Validity:

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform validation involves collecting and analyzing data to assess the accuracy of an instrument. Pilot testing was done to measure the validity of the instrument.

Reliability:

The tendency towards consistency found in repeated measurement of the same phenomena is referred to as reliability. Corn Bach's alpha test will be used for assessing the reliability.

Variables of interest:

Study variables.

- o Education status
- o Experience
- o Age

- o   Time
- o   Gender
- o   Environment
- o   Mode of delivery
- o   Place of delivery
- o   Religion
- o   Occupational status.

Data Analysis plan:

The data collected in this study was tabulated and analyzed by entering in Microsoft SPSS ver. 20 that was used for statistical analysis. Descriptive and inferential statistics were calculated.

Ethical Consideration:

Informed consent from consists of the following

- ➢   Purpose of study
- ➢   Right to participate
- ➢   Permission to use their given data in research study
- ➢   All participants are cleared about the type and reason of this research study before data collection.
- ➢   All participants were briefed about confidentiality of their provided.

Result:

Table: 01

Average of demographic data of the nurses regarding neonatal sepsis.

Variables	Frequencies	Percentage
Age:		
a.20 to 25-year b.26 to	19	38.0%
30-year c. 31 to	16	32.0%
35year	9	18.0%
d. Above 35 year	6	12.0%
Qualification:		
a. General Nursing Diploma	38	76.0%
b. BSc Nursing		
	5	10.0%
c. Post RN		
	7	14.0%
Designation:		
	2	4.0%

a.	Head Nurse	b. Charge	42	84.0%
	Nurse	c. Student	6	12.0%
	Nurse			

Experience:			
a. <3year to 5year	29		58.0%
b. 5year to 7year	6		12.0%
c. 7 year to 10year	15		30.0%
d. above 10 year			

Table 1 shows the demographic data of the participants. Tool of data collection was questionnaire. Sample size 50 questionnaire was taken for research study. 25 questions were added in questionnaire which categories in three parts. First are demographic study and other two parts containing knowledge and practice based on questions. In this 19(38%0 are 18 to 25 year, 16(32%) are 26 to 30 year, and 9(18%) are 31 to 35 year, while 6(12%) are >35 years of age. All participants were female nurses in which 38(76%) having General nursing diploma, 5(10%) are BScN and 7(14%) are Post RN. They are having 29(58%) <3year experience, 6(12%) have >5year experience and 15(30%) have >7-year experience in relative department at Allied Hospital Faisalabad (AHF).

Knowledge

Table: 02

Average knowledge of the nurses regarding neonatal sepsis.

Variables	Frequencies	Percentage
1. Which of the following is not a common sign of neonatal infection?		
a. Low birth weight		
b. Poor feeding	25	50.0%
c. Unusual irritability	7	14.0%
d. Elevated temperature	15	30.0%
	2	4.0%
	1	2.0%

2. **What factor does not make neonates more susceptible to infection?**
    a. Immature skin and immature immune system
    b. Umbilical cord
    c. Catheters and tape
    d. Diapers
	6
	
	5
	12
	
	27
		12.0%
		
		10.0%
		24.0%
		
		54.0%

3. **As a general rule for test taking, when in doubt of the causative organism of neonatal infection, you should choose?**
    a. Staph. Aureus
    b. Listeria monocytogenes
    c. Group B Strep
    d. E. Coli
	22
	
	3
	
	12
	
	13
		44.0%
		
		6.0%
		
		24.0%
		
		54.0%

4. **Which is the least common neonatal infection you would expect to find?**		
a. Sepsis		
b. Osteomyelitis		
c. Meningitis	12	24.0%
d. Pneumonia	36	72.0%
	1	2.0%
	1	2.0%
5. **What part of your hands should you remember to wash?**		
a. Back of hand		
b. Between fingers		
c. Under nails	1	2.0%
d. All of the above	1	2.0%
	0	0
	48	96.0%

Table 2 shows the knowledge of the nurses regarding Neonatal sepsis at Allied Hospital Faisalabad (AHF). Overall results show the sufficient knowledge of the nurses of Allied Hospital Faisalabad. In this study 25(50%) nurses answer the correct statement that low birth weight is the common sign of Neonatal sepsis. In this study 27(54%) nurses answer the right statement that dippers do not make neonates more susceptible to infection. In this study 12(24%) nurses answer the correct statement that Group B Strep of the causative organism of neonates. In this study 36(72%) nurses give the correct answer that osteomyelitis is less common infection in neonates. In this study 6(12%) nurses tic the right answer that Redman syndrome is not a side effect of vancomycin. In this study 48(96%) nurses tic the right answer the Handwashing is the first priority in preventing infection when providing care of the neonates. In this study nurses answer the correct statement that handwashing is easy and effective in preventing many infection and illness in neonates. In this study 40(80%) nurses give the right answer that mostly infection is transmitted to patient through the hands of health care workers.
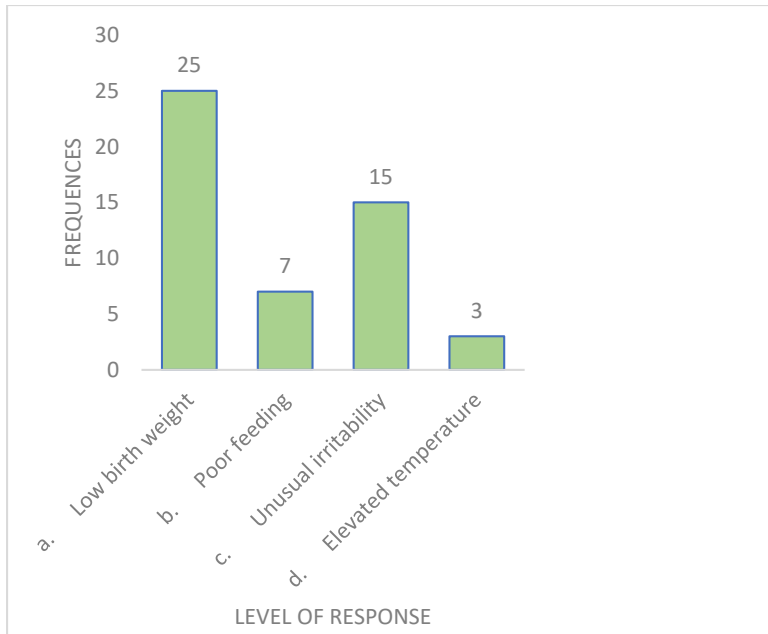
Practice

Table: 03

Average practice of the nurses regarding neonatal sepsis.

Variables	Frequencies	Percentage
1. How often do you wear rings to work? 　　**a.** Yes 　　　b. No	5 45	10.0% 90.0%
2. How often do you use full sterile barriers when assisting in or inserting a line/catheter? 　　**a.** Yes 　　　b. No	 45 5	 90.0% 10.0%
3. Do you wearing gloves when suctioning neonates? 　　**a.** Yes 　　　b. No	 49 1	 98.0% 2.0%

4.	**Do you use aseptic technique during vein puncture and taking sample?**
	    a. Yes
	        b. No
		42
		8
			84.0%
			16.0%

5.	**Do you replace disposable west product every 8 hour?**
	    a. Yes
	        b. No
		46
		4
			92.0%
			8.0%

6.	**Do you give proper eye and umbilical care of each neonate?**
	    a. Yes
	        b. No
		48
		2
			96.0%
			4.0%

Table 3 show the result regarding participants practices for preventing neonatal sepsis. In this study 45(90%) nurses give the right answer that do not wear rings to work. In this study only 45(90%) nurses have right practice to use sterile barriers when assisting in or inserting line/ catheter. In this study show the practice of 49(98%) nurses wearing gloves when they suctioning neonates.in this study has good practice 42(84%) nurses use disinfected oxygen mask for each neonate. In this study 40(80%) nurses answer that they have adequate space between each neonate. In this study 42(84%) nurses have good practice of use aseptic technique during vein puncture and taking sample. In this study 49(98%) nurses cut and disposed needle after use. In this study 48(96%) nurses give health education of mother about infection control. In this study 48(96%) nurses have good practice to giving proper eye and umbilical care of each neonate. In this study 44(88%) nurses use sterile instrument for any procedure in NICU.
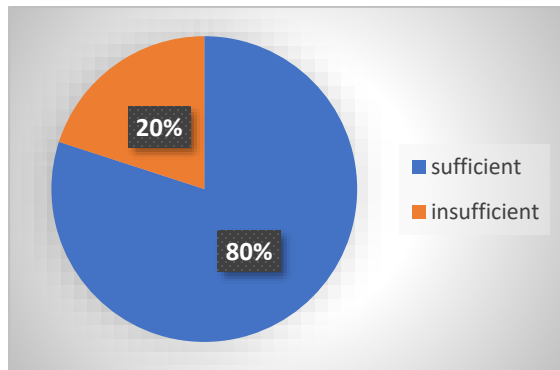
Statistic of knowledge

Variables	Frequencies
Mean	7.46
Std. deviation	1.474

Above table show the result of the knowledge mean and stander deviation with 50 sample size. The mean of the knowledge was 7.46 and Stander Deviation was 1.474.

Average knowledge of the nurses regarding neonatal sepsis.

Keys	Frequencies	Percentages

Knowledge status		
a. sufficient	40	80%
b. insufficient	10	20%
Total	50	100%

Statistic of practice

Variables	Frequencies
Mean	8.78
Std. deviation	1.447

Above table show the results of practice mean and St. deviation with 50 sample size. The mean of the practice was 8.78 and Stander deviation was 1.447.

Average practice of the nurses regarding neonatal sepsis.

Keys	Frequencies	Percentages
Practice status		
a. good	31	62%
b. poor	19	38%
Total	50	100%
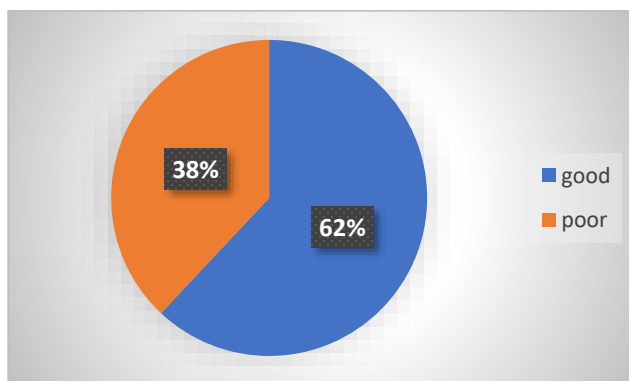
Table: 04

Average knowledge of the nurses regarding neonatal sepsis.

Variables	Frequencies	Percentages
Knowledge status		
a. sufficient	40	80%
b. insufficient	10	20%
Practice status		
a. good	31	62%
b. poor	19	38%

Table 4 show the 40(80%) sufficient knowledge and 31(62%) good practice of the nurses regarding neonatal sepsis at Allied Hospital Faisalabad (AHF).

6.Discussion:

This is a descriptive study was conducted at Allied Hospital Faisalabad (AHF). It was highlighted that 80% contributors have sufficient knowledge (n=40) and 20% contributors have insufficient knowledge (n=10) about neonatal sepsis. Mean of knowledge is 7.46 and stander deviation is 1.474. This study also represented that 62% contributors have good practice (n=31) and 38% have poor practices (n=19). Mean of practices is 8.78 and stander deviation is 1.447.

This study was done by Sabah Mohammad EI Sayed, Yomn Y. Sabry, Hamed M. Sharkawy and Faculty of Medicine, Tanta University. Maintaining and improving neonatal care requires active involvement of everyone in health care system, in order to meet the needs for evaluating health care in its totality as well as to identify weather operative and suitable care has been provided. Instruction and training are potential means for instigating active nursing care at Neonatal Intensive Care Unit (NICU), as they alter awareness intensification knowledge, and in turn change work and practice. The result of this study were nurses was unacceptable knowledge and practices regarding care provided for neonates. Education and training are probable earnings for instigating effective nursing care at Neonatal Intensive Care Unit (NICU), increase knowledge and change work practice. Most of nurses did not attend any training program related to neonatal care at NICU. The current study was depicted that 80% participants had sufficient knowledge (n=40) and 20% participants had insufficient knowledge. 62% participants have good practice (n=31) and 38% participants had poor practice (n=19) about Neonatal sepsis.

This study was conducted by Namrata Dhanorkar, Shaila Mathew, Nursing staff Govt. Hospital Sangli, Asst, Professor Bharati Vidyapeeth Deemed University College of Nursing Sangli. This study evaluates the remaining knowledge and selected practices regarding infection control measures among NICU staff. A study was directed in Isfahan with an objective to assess the nurse's knowledge of hospital infections and sterilization methods of hands equipment and surfaces in neonatal wards. It was found that average 63% of nurses had the knowledge related to hospital infection. A study was communication and had hygiene practices of nurses in Neonatal Intensive Care Unit in a tertiary hospital in Ghana. Observation was done of patient contact, hand hygiene practices and hand washing technique among nurses. According to this researcher study knowledge score of the staff nurses were high but the practices score of the staff nurses were low. But the result of current study sufficient knowledge of 80% participant have sufficient knowledge(n=40) and 20% participant have insufficient knowledge (n=10). 62% participant have good practice (n=31) and only 38% participant have poor practice (n=19). (Deshmukh and Shinde 2014).

This was an observational study, conducted by Allison M. Kennedy, MPH; Victoria. J. Fraser, MD; Alexis M. Elward, MD; University school of medicine in St. Louis. This study was showing the contributors confirmed high knowledge of suitable central venous Cather care and they whispered that such care was significant in stopping contamination but the actual practice of such procedure was low. The use of gloves was low. Knowledge of the correct duration of handwashing was low. Knowledge was much lower concerning the relationship between artificial or long fingernail and rings. Several studies have attempted to gather information on the knowledge and practice of health care workers in different settings regarding handwashing and infection control. But the current study shows the high knowledge 80% (n=40) and good practice 62% (n=31) for Central Venous Cather care and they believed that such care is important in preventing infection. All participant has sufficient knowledge and good practice about use of gloves. Participant have sufficient knowledge and good practice 90% (n=45) about artificial or long fingernail and rings. This participant

sufficient knowledge and good practice about hand washing hygiene importance, duration, hand hygiene and methods.(Kennedy, Elward et al. 2004).

7.Conclusion.

This study is conducted at Allied Hospital Faisalabad (AHF), aimed to identify knowledge and practice of the nurses regarding Neonatal sepsis that are caused by the deficit knowledge of 20% and poor practice 38% of nurses. To achieve this aim, knowledge and practice of the nurses regarding Neonatal sepsis care and prevention of infection spread of communicable diseases. Because care of patients is the fundamental responsibility of all nurses and health care worker. In this study staff nurses of different educational status such as Diploma holders, BSN and Specialized are involved to find out accurate results. Self-structured questionnaire was used to collect data from participants. Sample size was 50. Convenient sampling technique was used. It was found that of some participants have sufficient knowledge 80% about neonatal sepsis and some participants have good practice62% about sepsis care, prevention of infection and hand hygiene. Education and practice level of all participants had positive impact on Neonatal sepsis but it is suggested that the education facilities, both formal and informal should be enhanced in THQ Hospital, District Hospital and tertiary Hospital staff nurses and Midwifery's. knowledge of hand hygiene was adequate, but a significant deficiency in the knowledge of other infection control practices need to enhance and give suitable training and provided facilities of knowledge enhancement about neonatal sepsis care and prevention of neonates from hospital infection carrying.

8.Recommendation.

Sufficient Knowledge and good practice about the Neonatal sepsis of some nurses were observed during present study, but there is a great need to more enhance the knowledge and improve the good practice of nurses all staff nurses and health care workers. According to situation knowledge and training should be given to all staff nurses and health care workers.

- Continuous education of nurses regarding update strategies of sepsis care and prevention.
- Seminars should be conducted regarding sepsis care and spread sepsis and communicable disease.
- Safe and comfortable working environment should be provided to the all nurses.
- Provided proper facilities related to aseptic technique.
- proper space for each neonate
- sperate Oxygen mask and other instruments for each Neonates.
- Provide adequate space between baby cart, incubator and ventilator.
- Must wash hands before and after attending each Neonate.
- Must use glove for suctioning and other procedures.
- Must keep restricted visitors in Neonatal Intensive Care Unit (NICU).

Strength:

- Less expensive study.
- The study is relatively short duration and easy to conduct
- The study can easily measure prevalence of the disease and health related issue as this study measure Neonatal sepsis knowledge and practice of nurses.

Weakness:

- No cause and effect relationship were seen.
- Susceptible to biases such as responder bias, interviewer bias as the study do not have confirmation weather the response given by participant is right or wrong.
- Not suitable for determine rare disease or health issues as this study determine only neonatal sepsis care errors.

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