Factors Affecting Nursing Precautions for Prevention of Neonatal Septecimia

Thesis

Submitted for Partial Fulfillment of the Requirement for the Master Degree in Pediatric Nursing

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List of Abbreviations

Abb.	Full term
AAOG	American Academy of Obstetrics and Gynecology
AAP	American Academy of Pediatrics
AHD	Alcohol Hand Disinfection
BSI	Bloodstream Infection
CDC	Centers for Disease Control and Prevention
CFUs	Colony Foming Units
CI	Confidence Interval
CMV	Cytomegalovirus Infection
CNS	Central Nervous System
CPAP	Continuous Positive Airway Pressure
CRE	Carpapenem Resistant Enterobacteriaceae
CSF	Cerebrospinal Fluid
EOS	Early Onset Sepsis
GBS	Group B Streptococcus
GI	Gastrointestinal
GIT	Gastrointestinal Tract
GU	Genitourinary
$H1N_1$	Influenza (A) virus (Hemagglutinin– Neuraminidase)
HAIs	Health care Associated Infection
HBV	Hepatitis B Virus
HCA1	Hand Hygiene Practices
HCWs	Health Care Workers
HH	Hand Hygiene
HIV	Human Immunodeficiency Virus
HSV	Herpes Simplex Virus
IFN	Interferon gamma

Abb.	Full term
IgA	Immunoglobulin A
IgE	Immunoglobulin E
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IV	Intravenous
IVF	Intervenous fluid
LBW	Low Birth Wight
LOS	Late Onset Sepsis
MDROs	Multidrug-Resistant Organisms
mmHg	millimeter of Hydrargyrm
MRSA	Methicillin Resistant Staphylococcus Aureus
NICU	Neonatal Intensive Care Unit
NK	Natural Killer
O_2	Oxygen2
PMNs	Polymorphonuclear Neutrophils
PPE	Personal Protective Equipment
PPI	Proton Pump Inhibitor
PPMs	Primary Progressive Multiple sclerosis
PROM	Premature Rupture of Membranes
RDs	Respiratory Distress syndrome
SIRS	Systemic Inflammatory Response Syndrome
UN	Understanding Neonatal
UTI	urinary Tract Infection
VLBW	Very Low Birth Weight
VRE	Vancomycin Resistant Enterococcus
WBC	White Blood Cell count
WHO	World Health Organization

Abstract

Background: Non-application of different infection control methods will reach the occurrence of septecimia to the highest level especially for neonates as they as in a vurnable age. Despite years of clinical experience with the care of neonates with confirmed or suspected septecimia, challenges remain including the absence of a consensus definition of neonatal septecimia. **Aim:** To assess the factors affecting nursing precautions for preventing of neonatal septecimia. **Setting**: The study was carried out in NICU at Obstetric and Gynecological Hospital, Ain Shams University, and Elfayoum University Hospital**. Design**: A descriptive analytic design was used. **Subject:** A purposive sample composed of 70 neonatal nurses working at the NICU and caring of neonates with septicemia. **Tools:** Data collection included: A pre-designed interviewing questionnaire to assess the knowledge of nurses and observation checklist was set from the slandered of neonatal care to assess nurses' practices during caring of newborns suffering from septecimia. **Results:** The study findings revealed that highly statistically significant positive correlation between total nurses' knowledge and their practices related to factors affecting nurses' precautions for prevention of neonatal septecimia. **Conclusion**: The study concluded that more than half of studied nurses had satisfactory knowledge regarding to neonates suffer from septecimia. Moreover, less than two thirds of nurses reported there is appropriate work place while the majority of them reported that availability of supplies and near to one third of nurses was competent regarding to care of neonates suffering from septecimia. There is a highly statistically significant positive correlation between total nurses knowledge and their practices related to factors affecting nurses' precautions for prevention of neonatal septecimia. **Recommandations:** Preparing of educational programs for neonatal nurses about prevention of neonatal septecimia, implementing continuous on job training about prevention of neonatal septecimia and infection control program, continuous assessment of nurses' knowledge and practices level regarding infection control measures, farther researchers about the factors that affecting the nursing precautions to prevention neonatal septecimia with increasing sample size at different settings.

Keywords: Neonatal septecimia, factors, nursing precautions, neonatal intensive care unit.

Introduction

Neonatal sepsis is defined as systemic inflammatory reaction that occurs in an infant less than 28 days. Neonatal sepsis has been classified based on the timing of the infection into Early Onset Sepsis (EOS) and Late Onset Sepsis (LOS), early onset it seen in the first week and late onset sepsis occur between 8 - 28 days. Most common microorganism that causes neonatal sepsis is bacterial fungal or viral, or their toxins in blood tissue. Transmission of infectious organism in the neonate divided to vertical transmission (mother to infant) or horizontal transmission from medical staff or hospital equipment to the infant **(Obaid et al., 2016).**

Neonatal sepsis is consider one of the most important causes for morbidity and mortality in newborn babies among both full term and preterm infants. It considers serious health problem in developed and developing countries through the world. Risk of neonatal death in developing countries is 6 times higher than that of developed countries **(Gabriela et al., 2014).**

According to the leading causes of neonatal mortality the infections was the common followed by asphyxia and congenital abnormalities. Thus, neonatal sepsis is considered as one of the main causes of neonatal morbidity and mortality. It is classified as

the eighth cause of newborns deaths **(Gritz and Bhandari, 2015).**

Precise estimates of neonatal sepsis burden vary by setting, with differing estimates of burden between countries of different income levels. Defining the rate of neonatal sepsis is important and has been complicated by variation in the denominators used **(Stoll et al., 2011).**

When comparing rates of neonatal sepsis, it is important to note whether the denominator is comprised of the total number of live births or another measure, such as the number of hospital admissions. As noted, it is important to consider if population-based or hospital-based rates of neonatal sepsis are reported **(Manzoni et al., 2015).**

In the USA, the incidence of neonatal bacterial sepsis varies from one to four infections per 1000 live births, with geographical location and temporal changes over time accounting for variance. Full-term male infants have a higher incidence of sepsis than full-term female infants, although this association has not been seen in preterm infants. A study from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Neonatal Research Network documented rates of culture-confirmed early-onset sepsis among almost 400000 live births at network centers. The overall rate of early-onset sepsis, defined as a positive blood or Cerebrospinal Fluid (CSF) bacterial culture at less than 72

hours of age, was 0.98 infections per 1000 live birth **(Shane et al., 2017)**.

Early-onset neonatal sepsis occurs in uterus from either a trans placental or, more commonly, ascending bacteria entering the uterus from the vaginal environment following membrane rupture. Additionally, the newborn child might become infected when exposed to potentially pathogenic bacteria, viruses, or fungi during passage through the birth canal. The human birth canal is colonized with aerobic and anaerobic bacterial organisms that can be vertically transmitted from an ascending infection of the amniotic fluid or natal infection of the neonate during labor or delivery **(Meem et al., 2011).**

Significance of study:

The human birth canal is colonized with aerobic and anaerobic bacterial organisms that can be vertically transmitted from an ascending infection of the amniotic fluid or natal infection of the neonate during delivery. Moreover, this study investigated the factors related to nursing precautions and other preventive measures that involve reducing the chance of neonatal septecimia which seriously leads to decrease the mortality among neonates. Neonatal septecimia have mortality rate between 2%

and 13%. The incidence of neonatal sepsis in 2016 was reported as between 4% and 14% 15.4/1,000 live newborns. In developing

countries and Middle East countries there is little numbers of researches about neonatal sepsis **(Abolwafa, 2009).**

In Egypt one study done in Center at El Manial university hospital, cairo university show that one of microbial infection of the blood type that travels through catheter intravenous. Followed by infections of the respiratory tract by the lower rate (12.9%) and cases of ear, nose and throat infection rate (8.6%) and cases of neonatal septecimia rate (8.6%) **(Abolwafa, et al., 2013).**