Neonatal and Pediatric Medicine

Nurse s Skills Regarding Care of Preterm Infants in Neonatal Intensive Care Unit Selected in Jazan, KSA

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Abstract

Preterm is de fned as babies born alive before 37 weeks of pregnancy are completed. Premature infants can develop a range of problems because their organs are not mature enough. The proper nursing care of premature baby should be established by good nursing performances. Our aim of this descriptive cross-sectional study was to assess the skills of nurses regarding premature infants care in incubator admitted in neonatal intensive care unit (NICU) at king Fahd Hospital and prince bin Nasser Hospital, Jazan city. The study was conducted in the period from December 2018 to March 2019. Total convenience sample of 50 nurses were enrolled in the study. The study focused mainly on frequent and routine nursing process. Data was collected by questionnaire and observational check] l γ` Má ψ f

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Introduction

Most women receive the news of their pregnancy with great excitement, awaiting the required weeks to give birth and receive a healthy, full-term baby. Sometimes, due to certain circumstances, birth takes place before the necessary weeks have elapsed and the baby is born prematurely and presenting certain complications. Although there are organizations around the world dedicated to protecting mothers in their prenatal stage as well as their babies, and even with the great e orts taken and developments to avoid premature births, the rate of premature newborns is still high all around the world [1].

Preterm infants are at risk because their organ systems are immature and they lack of adequate physiologic reserves to function in an extra uterine environment. e range of birth weight and physiologic problems varies widely among preterm infants as a result of increase survivability among those who weigh less than 1000 gm. However, the lower weight and gestational age produce lower chances of survival among those infants. Preterm birth is responsible for almost two thirds of infants' deaths [2].

All premature newborns should be cared for in the Neonatal Intensive Care Unit (NICU) by specialized personnel. Advances in research and science have provided new, high-tech equipment for use in NICUs [3].

Justi cation

e premature babies exist universally in all populations. According to the WHO, more than 15 million premature babies are born each year, of them a million die within a year due to health complications. [1]

Preterm and low birth weight with high mortality and morbidity continues to be a major public health problem in the world this is a serious and big problem which leads to increase in mortality and morbidity rate among this group of newborns.

Assessment of nurse's practice regarding care of premature babies hence improving them reduces this mortality rate and improves their outcome.

Objectives

General objective

De nition of premature baby

Preterm births are babies born before 37 weeks of gestational period or 259 days from the rst day of the last menstrual cycle as per the World Health Organization.

Preterm births are most commonly classi ed as:

Late term-premature: Babies that are born between 34 to 36 weeks of gestation.

Moderately premature: Babies that are born between 32 to 36 weeks of gestation.

Very premature: Babies that are born before 32 weeks of gestation. [4] Premature baby is the birth of a baby before the developing organs are mature enough [5].

Risk factors

Premature birth has been associated with several factors, such as history of preterm birth [6-9], anemia [10,11], high catecholamine levels in the maternal urine [12], tobacco consumption [13,14], premature rupture of membranes (PROM) [7-15], high blood pressure (HBP) [16], vaginal bleeding [7], urinary tract infection (UTI) [7-17], lack of prenatal care [15], inadequate prenatal care [15], maternal age less than 20 years [14], maternal age over 35 years [17], oligohydramnios [8], preeclampsia, twin pregnancy [8-15], although there are several risk factors associated with premature birth, its etiology has not been fully determined [11-17].

Characteristics of premature infant

Premature infant may have very little body fat, this can make the infant appear very thin. e baby will not weigh nearly the amount of a full-term baby. Premature babies who born between 30 and 32 weeks are likely to have thin skin as a result of the limited body fat, the ribs may be easy to see under the skin, the tissue may appear red. e skin is o en wrinkly, extremely, premature infants who are delivered anytime between the 24th and 27th weeks; have yet to develop the exterior layer of skin, which begins solidifying in the 26th week, points out that the skin may appear smooth and shiny. Premature babies have no hair at all; they lack the lanugo, or ne fuzz that covers an infant's body beginning around week 24 or shortly a er. Premature baby who arrives closer to term may have fuzz all over the body, even the head. A premature will not move, the movements of a baby born between 29 and 32 weeks may appear jerky instead of smooth. Babies born before these weeks may not move much at all. e arms and legs may remain in an outstretched position from the lack of muscle tone. Around the 35th week, a premature has enough muscle tone to get into the fetal position, like a full-term newborn. Sucking may be di cult due to an infant's poor muscle tone, they have so at ears with little cartilage, and small scrotum with few folds; testes may be undescended in very premature newborns, girls labia majora not yet covering labia minora. [18].

Equipment used to evaluate and treat the newborn

Incubator: An incubator (or isolate [19]) is an apparatus used to maintain environmental conditions suitable for a neonate (newborn baby). It is used in preterm births or for some ill full-term babies.

ere is additional equipment used to evaluate and treat sick neonates. ese include:

Blood pressure monitor: e blood pressure monitor is a machine that's connected to a small cu which wrapped around the arm or leg of the patient. is cu automatically takes the blood pressure and displays the data for review by providers.

Oxygen hood: is is a clear box that ts over the baby's head and supplies oxygen. is is used for babies who can still breathe but need some respiratory support.

Ventilator: is is a breathing machine that delivers air to the lungs. Babies who are severely ill will receive this intervention. Typically, the ventilator takes the role of the lungs while treatment is administered to improve lung and circulatory function.

Incubator care

e incubators provide special environment for high risk babies till they adapt themselves to standard nursery or home conditions. Incubators allow optimal heat balance and provide isolation from air-borne infections. Incubators are mainly used for low-birth weight or premature babies, infants recovering from stress of birth and sick babies requiring special observation or ambient oxygen.

Possible functions of a neonatal incubator are

Oxygenation, through oxygen supplementation by head hood or nasal cannula, or even continuous positive airway pressure (CPAP) or mechanical ventilation. Infant respiratory distress syndrome is the leading cause of death in preterm infants, [20] and the main treatments are CPAP, in addition to administering surfactant and stabilizing the blood sugar, blood salts, and blood pressure observation: Modern neonatal intensive care involves sophisticated measurement of temperature, respiration, cardiac function, oxygenation, and brain activity.

Protection from cold temperature, infection, noise, dra s and excess handling: [21]. Incubators may be described as bassinets enclosed in plastic, with climate control equipment designed to keep them warm and limit their exposure to germs.

Provision of nutrition, through intravenous catheter or NG tube.

Administration of medications. Maintaining uid balance by providing uid and keeping a high air humidity to prevent too great a loss from skin and respiratory evaporation [22]. A transport incubator is an incubator in a transportable form, and is used when a sick or premature baby is moved, e.g., from one hospital to another, as from a community hospital to a larger medical facility with a proper neonatal intensive-care unit. It usually has a miniature ventilator, cardio-respiratory monitor, IV pump, pulse oximeter, and oxygen supply built into its frame [21].

Premature infants care

In developed countries premature infants are usually cared for in an NICU. e physicians who specialize in the care of very sick or premature babies are known as neonatologists. In the NICU, premature babies are kept under radiant warmers or in incubators, which are bassinets enclosed in plastic with climate control equipment designed to keep them warm and limit their exposure to germs. Modern neonatal intensive care involves sophisticated measurement of temperature, respiration, cardiac function, oxygenation, and brain activity. Treatments may include uids and nutrition through intravenous catheters, oxygen supplementation, mechanical ventilation support [23], and medications. In developing countries where advanced equipment and even electricity may not be available or reliable, simple measures such as kangaroo care (skin to skin warming), encouraging breastfeeding, and basic infection control measures can signi cantly reduce preterm morbidity and mortality. Bili lights may also be used to treat newborn jaundice (hyperbilirubinemia).

Water can be carefully provided to prevent dehydration but no so much to increase risks of side e ects [24].

In a 2012 policy statement, the American Academy of Pediatrics recommended feeding preterm infants human milk, nding "signi cant short- and long-term bene cial e ects," including lower rates of necrotizing enter colitis (NEC) [25]. It is unclear if forti cation of breast milk improves outcomes in preterm babies, though it may

speed growth [26]. ere is limited evidence to support prescribing a preterm formula for the preterm babies a er hospital discharge [27].

Material and Methods

Study design

Descriptive cross-sectional hospital based study

Study duration

e study was conducted from December 2018 to March 2019

Study area

Incubator care practice							

ere was signi cant association between years of nursing experience in NICU and Practice regarding change of humidi er water daily. (P. value=0.015) (Table 7).

ere was signi cant association between years of nursing experience in NICU and practice regarding monitoring O_2 sThtctoring O

done by Badoor which showed that the majority of respondents have nearly the level of performance is weak in all nursing procedures [32], except for changing humidi er water daily all most of nurses did not applied. also our study showed that most of nurses applied completely and correctly regarding neonatal feeding by NGT these results disagree with study established by Adel Mohammed A and Abdel Fattah S A to assess the e ect of educational program on nurse's knowledge and practices about nasogastric tube feeding at neonatal intensive care units, they detected that practitioner nurses' level of knowledge and skills were inadequate with some skills [33] .

Our study showed that nurses had adequate practice regarding care of preterm under photo-therapy, most nurses (80%) checked the lights of phototherapy unit before use and placed it in proper place, all nurses (100%) covered eyes and genitalia while the preterm is under phototherapy and also all of them monitored infant temperature frequently, completely and correctly compared to what reported by Neghabadi FP et al. who stated that the ndings of his study suggest that phototherapy-related care services are much below the standards. He also found that other neonates who were close to phototherapy units were not protected against light. Nonetheless, study ndings showed that in most cases, neonates' body temperature was monitored neither a er starting nor a er discontinuing phototherapy [34].

Regarding teaching and support of parents Shows that all of nurses explain baby condition to the parents to reduce their anxiety, all most of nurses teaching mother's about breast feeding and any problem may be occur a er discharge, the most de cient item was kangaroo care. Kangaroo care (KC), a well-established parent-based intervention in neonatal intensive care units (NICUs), with documented bene ts for infants and their parents [35]. In the Kangaroo National Survey of Practice, Knowledge, Barriers and Perception the majority of nurses were knowledgeable about KC's e ects on most topics [36].

e study showed that there is statistically highly signi cant relationship between the years of experiences of nurses and their performance regarding incubator care in most items. More quali ed nurses had longer years of experiences. Costa CC et al. observed similar association between nurses' years of experience and their handling of neonatal incubators [34] .

Conclusion

Based on the study results, the study showed that:

Studied nurses had adequate practice regarding care of premature in incubator, except for wiping the inside (50%) and changing humidi ed water (30%).

e nurses care regarding preterm under phototherapy, nasogastric tube feeding and precaution steps for infection prevention were adequate.

e teaching and support to parents was accepted except for Kangaroo care (10%) of the nurses do it.

So overall the practice of nurses was good regarding care of premature baby.

ere was signi cant correlation between years of nursing experience in NICU and practice regarding care of premature baby.

Recommendation

Based on the study results, the study recommended that:

1. Continuous education program for sta development and maintaining their knowledge and practice on good levels.

2. Recruitment of quali ed nurses for working in NICU to improve the outcome.

3. Establishing education program by nurses for all mothers to improve their knowledge and skills in care of premature babies at home especially the bene ts and management of kangaroo mother care (KMC).

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References

1. World Health Organization (2012) Born too soon: The global action report on preterm birth.
2. Lowdermilk DL, Perry SHE, Cashion K (2013) The newborn at Risk, Maternity Nursing, 8th (Edn). 896.
3. Jorgensen AM (2010) Born in the USA-the history of neonatology in the United States: A century of caring. NICU Currents 8-12.
4. MacDorman MF, Mathews TJ (2008) Recents trends in infant mortality in the United States. NCHS Data Brief 9:1-8.
5. World Health Organization (2013) Preterm birth.
6. Schwab FD, Zettler EK, Moh A, Schötzau A, Gross U, et al. (2016) Predictive factors for preterm delivery under rural conditions in post-tsunami Banda Aceh. J Perinat Med 44:511-515.
7. Morgan F, Cinco A, Douriet F, Báez J, Muñoz J, et al. (2010) Factor essociod emográ fcos y obstétricosa sociados con nacimientopretérmino. GinecolObstet Mex 78:105-107.
8. Ozorno L, Rupay G, Rodríguez J, Lavadores A, Dávila J, et al. (2008) Factoresmaternosrelacionados con prematuridad. GinecolObstet Mex 76:526-536.
9. Genes V (2012) Factores de riesgoasociados al partopretérmino. Rev NacItaugua 4:8-14.
10. Scholl TO, Hediger ML, Fischer RL, Shearer JW (1992) Anemia vs iron de fciency: increased risk of preterm delivery in a prospective study. Am J Clin Nutr 55:985-86.
11. Giacomin L, Leal M, Moya R (2009) Anemia materna en el tercertrimestre de embarazocomo factor de riesgoparapartopretérmino. Acta Med Costarric 51:39-43.
12. Holzman C, Senagore P, Tian Y, Bullen B, Devos E, et al. (2009) Maternal catecholamine levels in midpregnancy and risk of preterm delivery. Am J Epidemiol 170:1014-1024.
13. Wikstrom A, Cnattingius S, Galanti M, Kieler H, Stephansson O (2010) Effect of Swedish snuff on preterm birth. BJOG 117:1007-1008.
14. McCowan L, Dekker G, Chan E, Stewart A, Chappell L, et al. (2009) Spontaneous preterm birth and small for gestational age infants in women who stop smoking early in pregnancy: prospective cohort study. BMJ 338:1-6.
15. Ouattara A, Ouegraogo CM, Ouedraogo A, Lankoande J (2015) Factors associated with preterm birth in an urban African environment: A case-control study at the University Teaching Hospital of Ouagadougou and Saint Camille Medical Center. Med Sante Trop 25:296-299.
16. Morisaki N, Togoobaatar G, Vogel JP, Souza JP, Rowland-Hogue CJ, et al. (2014) Risk factors for spontaneous and provider-initiated preterm delivery in high and low Human Development Index countries: a secondary analysis of the World Health Organization Multicountry Survey on Maternal and Newborn Health. BJOG 121.
17. Rodríguez S, Ramos R, Hernández R (2013) Factores de riesgopara la prematurez. Estudio de casos y controles. Ginecol Obstet Mex 81:499-503.

18. Sears WMD (2004) The March of Dimes: Preemies: The Essential Guide for Parents of Premature Babies .Medline Plus: Premature Infant. The Premature Baby Book.

19. Merriam-Webster dictionary -->isolette (permanent dead link). 2009.

20. Rodriguez RJ, Martin RJ, Fanaroff, AA (2002) Respiratory distress syndrome and its management. Fanaroff and Martin (eds.) Neonatal-perinatal medicine: Diseases of the fetus and infant; 7th ed. 1001-1011.

21. Equipment in the NICU. 2009.

22. Abdiche M, Farges G, Delanaud S, Bach V, Villon P, et al. (1998) Humidity control tool for neonatal incubator. Med Biol Eng Comput 36:241-245.

23. Bruschettini M, O'Donnell CP, Davis PG, Morley CJ, Moja L, et al. (2017) Sustained versus standard inf ationsduring neonatal resuscitation to prevent mortality and improve respiratory outcomes. Cochrane Database Syst Rev.

24. Bell EF, Acarregui MJ (2014) Restricted versus liberal water intake for preventing morbidity and mortality in preterm infants. Cochrane Database Syst Rev.

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