Nurses' Knowledge versus Their Performance in Caring for Neonates Having Respiratory Distress Syndrome

Thesis

Submitted in Partial Fulfillment of the Requirements

For the Doctorate Degree in Pediatric Nursing

By

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- 2014 –

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ACKNOWLEDGEMENT

First of all, I thank God, ***Allah*** *the beneficent the merciful for helping me to accomplish this work.*

Words cannot convey my thanks and appreciation to ***Prof. Dr. Magda Mohamed E. Youssef****, Professor of Pediatric Nursing, Faculty of Nursing, Alexandria University for the meticulous supervision and critical comments that were of major support in this work.*

My deepest thanks and gratitude are extended to ***Assist. Prof. Madiha Amin M. Abou Khalaa****, Assistant Professor of Pediatric Nursing, Faculty of Nursing, Ain-Shams University for her helpful suggestions, valuable advises and continuous support.*

Special thanks to the director of Ain-Shams University Hospital, El-Fayoum University, General and Health Insurance Hospital, doctors, nurses and every member who helps me for the accomplishment of this work. I would like to express my thanks to everyone who participated in the conduction of this study.

Last, but not least, I should acknowledge the help of my parents, my husband, my friends and my children to whom I'm dedicating this work. Their help extends of course for beyond this work to cover every bit of my life. They were so patient and understanding and have created for me an ideal atmosphere to enjoy my work and indeed, I have enjoyed it.

The Candidate

***Azza El-Sayed* Ali Hegazy**

DEDICATION

My Work is Dedicated

To:

My Prof. Magda E. Youssef

My parents, my husband,

My friends and my children

Abd El-Rahman, Nour, Malk

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LIST OF ABBREVIATIONS

Abbreviation	Full Term
ABCA3	ATP-Binding Cassette Transporter A3 Genes
BALSP-B	Bronchoalveolar Lavage Surfactant Protein-B
BPD	Broncho Pulmonary Dysplasia
CPAP	Continuous Positive Airway Pressure
CVCs	Central Venous Catheters
ETT	Endo Tracheal Tube
FIO_2	Fraction of Inspired Oxygen
GPSC	Gram Positive Streptococci
GERD	Gastro Esophageal Reflux Disease
Hb	Hemoglobin
HCO3	Bicarbonate
HFOV	High Frequency Oscillatory Ventilation
HIN	High Institute of Nursing
HMD	Hyaline Membrane Disease
Hr	Hour
IPPV	Intermittent Positive Pressure Ventilation
IUGR	Intra Uterine Growth Restriction
IVH	Intra Ventilator Haemorrhage
L/S	Lecithin/Sphingomyelin Ratio
LBW	Low Birth Weight
MmHg	Millimeter Mercury
MOH	Ministry of Health
MV	Mechanical Ventilation
NEC	Necrotizing Enterocolitis
NICU	Neonatal Intensive Care Unit
NR	Not Required
NRD	Neonatal Respiratory Distress

Abbreviation	Full Term
$PaCO_2$	Partial Pressure of Carbon Dioxide in Arterial Blood
PaO_2	Partial Pressure of Oxygen in Arterial Blood
PCO_2	Pressure of Carbon Dioxide in Air
PDA	Patent Ductus Arteriosus
PEEP	Positive End Expiratory Pressure
PG	Phosphatidyl Glycerol
pH	Concentration of Hydrogen Ions in Blood
PIP	Peak Inspiratory Pressure
PN	Parenteral Nutrition
R	Remarks
RDS	Respiratory Distress Syndrome
SP-B	Surfactant Protein-B
SP-C	Surfactant Protein-C
WHO	World Health Organization

ABSTRACT

Respiratory Distress Syndrome (RDS) is the most common neonatal emergency and the main cause of admission to neonatal intensive care units. Assessment of the knowledge and close observation for the performance should be done for improving the neonatal nurses' quality of care during the care of neonates with RDS. **Aim of the study** was to assess nurses' knowledge versus their performance in caring for neonates with respiratory distress syndrome (RDS). **Research Design:** A descriptive correlational research design was utilized. **Settings:** The study was conducted at Neonatal Intensive Care Units (NICUs) belonging to Ain-Shams University Hospitals, El-Fayoum University, General and Health Insurance Hospitals. **Subjects:** All nurses who cared for neonates with RDS, at NICUs in the previously mentioned settings comprised the subjects (N= 60 nurse). **Tools for data collection:** A structured observation checklist to assess nurses' performance and structured questionnaire sheet to assess nurses' knowledge. **Results:** The majority of nurses' total knowledge scores were poor about care of neonates with RDS, while the majority of the nurses had either "good" or "satisfactory" performance scores. The differences between nurses' performance and their knowledge were highly statistically significant regarding the care of neonates with RDS. **Conclusion:** The study concluded that nurses' performance didn't base on their knowledge. **Recommendation:** The study recommended in-service educational programs to update nurses' knowledge and practices toward providing comprehensive nursing care for neonates with RDS. Orientation programs for newly employee about care of neonates with RDS are mandatory.

Key words: Nurses' Knowledge-Nurses' Performance-Neonates with RDS.

INTRODUCTION

Respiratory distress syndrome (RDS) is also known as hyaline membrane disease (HMD). It is a general term refers to neonatal respiratory difficulties and is a primarily disease related to developmental delay in lung maturation and adaptation to extra uterine life. It occurs almost exclusively in premature neonates. The incidence and severity of RDS are related inversely to the gestational age of the neonate ***(Pramanik, 2012)***.

Respiratory distress syndrome is considered an important and a serious significant cause for neonatal mortality and morbidity. It occurs in 50% of very low birth weight and premature neonates. Also, it is responsible for 19% of neonatal mortality worldwide ***(Fanaroff et al., 2010)***. According to the results of a cross-sectional study done by Ministry of Health and Population, which represents that RDS is considered the first cause of neonatal deaths (27.5%) followed by causes related to prematurity (15.8%). However, the World Health Organization (WHO) estimated that RDS and problems linked with preterm births constitute 23% of neonatal mortality ***(WHO, 2009)***.

According to the statistical records of Ain-Shams University, Maternity and Gynecological Hospital, RDS occurs in 13.6% of live births and responsible for 22.77% of neonatal mortality ***(Unpublished statistical records from Ain-Shams University, Maternity and Gynecological Hospital, 2010)***. On the other hand, the statistics of the Children Hospital in El Monira, Cairo University, reported that NRD occurs in approximately 10.9 % of total admission of neonates in NICU and RDS constitutes 59.6 % of them ***(Unpublished statistical records from Children Hospital in El-Monira, Cairo University, 2012)***

The cause of RDS is relative deficiency of surfactant, which decreases lung compliance and functional residual capacity with increased dead space ***(Pramanik, 2012)***. The outcome of RDS has improved in the recent years with increased use of antenatal steroids to improve pulmonary maturity, early postnatal surfactant therapy to replace surfactant deficiency and gentler techniques of ventilation to minimize damage to the immature lungs ***(Mantan & Arulkumarans, 2011).***

The therapy of RDS resulted in the survival of premature neonates who are smaller and more ill. Although they reduced the incidence and severity of complications of RDS, still they continue to present significant morbidities. The sequelae of RDS include intracranial hemorrhage and/or peri-ventricular leukomalacia with associated neuro-

developmental delay, septicemia, broncho-pulmonary dysplasia (BPD), patent ductus arteriosus (PDA) and pulmonary hemorrhage. Direct attention to anticipating and minimizing these complications and also toward preventing premature delivery whenever possible are strategic goals ***(Pramanik, 2010)***.

Care of neonates with respiratory distress involves all the observations and interventions for any neonate in the neonatal care units ***(Vohr et al., 2010)***. The nurse is concerned with the complex problems related to respiratory therapy. Continuous monitoring and close observation are mandatory because neonate's status can be change rapidly. Oxygen concentration is prescribed to neonates according to their blood gases measurements and pulse oximetry reading which are recorded at least hourly ***(Hockenberry et al., 2008)***.

The competence of qualified and well trained neonatal nurses in the care of distressed neonates makes them not only excellent alternative care provider, but also they have knowledge and skills. The knowledge and skills make them members of health care team, whose focus on the provision of high quality of nursing care besides playing a role of traditional nursing care ***(WHO, 2009)***.

Significance of the Study

The performance of the neonatal nurses is usually influenced mainly by their wide base of knowledge. So, assessment of the knowledge and close observation for the performance should be done for improving the neonatal nurses' quality of care during the care of neonates with RDS. Therefore, the present study aims to investigate nurses' knowledge versus their performance in caring for neonates with RDS.

AIM OF THE STUDY

The aim of this study was to:

Assess nurses' knowledge versus their performance in caring for neonates with respiratory distress syndrome (RDS).

Research Question

Do nurses' performance based on their knowledge regarding the care of neonates with respiratory distress syndrome?

REVIEW OF LITERATURE

Respiratory Distress Syndrome

Respiratory Distress Syndrome has been reported in all races worldwide, occurring most often in premature neonates. Respiratory distress syndrome is encountered less frequently in the developing countries than elsewhere, primarily because most premature neonates, who are small for their gestation, are stressed in utero because of malnutrition or pregnancy-induced hypertension. Because most deliveries occur at home, accurate records are unavailable to determine the frequency of RDS in developing countries ***(Pramanik, 2010)***. Respiratory Distress Syndrome occurs in 42% of neonates between 501 and 1500 gram (g), including 71% between 501 and 750g, 54% between 751 and 1000 g, 36% between 1001 and 1250 g, and 22% between 1251 and 1500 g ***(Jobe, 2012).***

Pathology

The lungs of neonates who succumb from RDS have a characteristic uniformly purpurish red and airless appearance, macroscopically resembling hepatic tissue. Microscopically, the striking feature is diffuse atelectasis such that only a few widely dilated alveoli are readily distinguishable. In histologic appearance of the lungs in a neonate with RDS, the marked atelectasis was observable and so called hyaline membranes lining the dilated alveolar ducts (Fig.I) (***Rodriguez et al., 2012)***. An eosinophilic membrane lines the visible airspaces that usually constitute terminal bronchioles and alveolar ducts. This characteristic membrane (from which the term "hyaline membrane disease" is derived) consists of a fibrinous matrix of materials derived from the blood and contains cellular debris derived from injured