Transient Tachypnea of the Newborn Analysis of risk factors

Thesis

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Marwa Ahmed Mohamed Abdel Latif

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List Of Abbreviations

ABG	**Arterial blood gases**
AP	Antroposterior
AQP5	aquaporin 5
ARDS	Acute respiratory distress syndrome
BPD	Bronchopulmonary dysplasia
BE	Base excess
B.WT	Birth weight
CDH	Congenital diaphragmatic hernia
CHARGE	coloboma, heart defect, atresia choanae, retarded growth, genitourinary abnormalities, and ear anomalies
CI	Confidence interval
CPAP	Continuous positive airway pressure
DM	Diabetes mellitus
EA	Esophageal atresia
ECMO	Extracorporeal membrane oxygenation
FiO2	Fraction of inspired oxygen
GBS	Group B streptococcus
HB	Hemoglobin
HFOV	High frequency oscillatory ventilation
HIV	Human immune deficiency virus
HR	Heart rate
HTN	Hypertension
IDM	Infant of diabetic mother
IC	Intercostal
INO	Inhaled nitric oxide
IV	Intravenous
KPa	Kilopascals
LSCS	Lower segment cesarean section
PaCO2	Partial pressure of carbon dioxide in arterial blood

PO2	Oxygen pressure
MAS	Meconium aspiration syndrome
MgSO4	Magnesium sulfate
MSAF	Meconium-stained amniotic fluid
MV	Mechanical ventilation
NICU	Neonatal Intensive Care Unit
NP	Nasal pronge
NO	Number
NPO	Nil per os
PEEP	Positive end expiratory pressure
PLT	Platelets
PPHN	Persistent pulmonary hypertension
PVR	pulmonary vascular resistance
RBC	Red blood cell count
RDS	Respiratory distress syndrome
RR	Respiratory rate
SaO2	Saturation of oxygen in arterial blood
SC	Subcostal
SD	Standard deviation
SGA	Small for gestational age
SP-A	Surface protein A
SP-B	Surface protein B
SP-C	Surface protein C
SPSS	standard computer program software package
SP-D	Surface protein D
SVD	Spontaneous vaginal delivery
TEF	Tracheo-esopahgeal fistula
TOF	Tracheo-esophagel fistula
TORCH	Toxoplasmosis, Rubella, syphilis, cytomegalovirus, herpes simplex
TTN	Transient tachypnea of the newborn

T test	Student t-test
VACTERL	veretebral defects, anal atresia, cardiac malformations, trachea-esophageal fistula, renal dysplasia an limb abnormalities
VRE	vancomycin- resistant enterococci
WBC	White blood cells
χ^2	Chi square test

Introduction

Postnatal respiratory complications among term infants are common. The most commonly reported cause of neonatal respiratory distress is transient tachypnea of the newborn with estimated incidence of 1% to 2% of all newborns ***(Tutdibi et al., 2010).***

Transient tachypnea of the newborn is usually a benign self limiting disease, but associated hypoxemia, respiratory failure and pulmonary air leak syndromes can increase the risk of morbidity. In severe courses of transient tachypnea of the newborn complications such as pneumothorax, need for extracorporeal membrane oxygenation and death have been reported ***(Ramachandrappa and Jane, 2008).*** Transient tachypnea of the newborn is thought to be caused by delayed resorption of fetal lung fluid from the pulmonary lymphatic system ***(Christian and Kevin, 2007).***

Risk factors include male sex, macrosomia, maternal diabetes, maternal asthma, preterm birth, perinatal asphyxia and cesarean delivery **(*Dani et al., 1999).***

The risk of adverse respiratory outcomes in neonates is higher among infants delivered before 39 weeks gestation than after 39 weeks and among infants delivered by elective cesarean

section in comparison to those delivered vaginally **(*Zanardo et al., 2004*).**

Respiratory morbidity in late preterm (34-37 weeks' gestation) infants delivered by elective cesarean section has been well documented ***(Levine et al., 2001).***

There is considerable evidence that physiologic events in the last few weeks of pregnancy, coupled with onset of spontaneous labor, are accompanied by changes in the hormonal milieu of the fetus and mother, and result in rapid maturation and preparation of the fetus for delivery and neonatal transition ***(Jain and Eaton, 2006).***

In recent decades, the rates of cesarean section, especially those performed electively at term and partly at maternal request, have shown an increasing trend ***(Menacker et al., 2006).*** This situation has drawn attention to the problem of respiratory disorders in term and late preterm infants ***(Tutdibi et al., 2010).***

Epidemiological studies reported that elective cesarean section increased the risk of neonatal respiratory morbidity and the rates of admission to the Neonatal Intensive Care Unit (NICU) compared with gestational age matched newborns after spontaneous vaginal delivery ***(Tutdibi et al., 2010).*** There is no enough data about the incidence of transient tachypnea of newborn in Egypt and associated risk factors.

Aim of the study

The aim of this study is to determine the effect of gestational age, sex, timing and type of delivery on the incidence and course of transient tachypnea of the newborn in late preterm and term pregnancies.

Neonatal respiratory distress

Respiratory distress in neonates is defined as a respiratory rate of more than 60 per minute, dyspnea with intercostal or subcostal indrawing, sternal retraction and a predominantly diaphragmatic breathing pattern. A characteristic expiratory or inspiratory grunt may or may not be present **(*Kumar and Bhatnagar, 2005).***

When faced with a neonate with respiratory distress it becomes necessary to compartmentalize the management into an initial phase focusing on the degree of respiratory compromise, resuscitation of the neonate and optimizing its tissue oxygenation, and a planned subsequent phase to clarify the etiology, definitive management and follow up ***(Mathur et al., 2002).***

The weight and gestation of the infant and the degree of respiratory compromise would be the key factors to decide the level of care the infant would require. While infants of lower weight and gestation would require more advanced facilities, larger infants can be managed at smaller centers ***(Mathur et al., 2002).*** Simple clinical scores like Downe's score if meticulously documented at 30-60 minutes intervals are very useful to determine the progression of the respiratory distress ***(Diwakar, 2003).***