Post extubation nasal intermittent positive pressure ventilation vs nasa continuous positive air way pressur in respiratory distress syndrome

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List of Abbreviations

Abb.	*Full term*
AAP	American Academy of Pediatrics
ABG	Arterial blood gas
ABCA3	ATP binding casette gene
ACS	Antenatal Corticosteroids
ARDS	acute respiratory distress syndrome
ATP	adenosine triphosphate
BP	blood pressure
BPD	Bronchopulmonary dysplasia
BPM	breath per minute
BiPAP	Biphasic positive airway pressure
C°	Celsius
CLD	chronic lung disease
CPAP	Continuous positive airway pressure
CS	Cesarean section
DR	Delivery room
DPPC	dipalmitoyl- phosphatidyl-choline
ECS	Elective Cesarean section
ELBW	Extremely low birth weight
ETT	Endotracheal tube
FDA	Food and Drug Administration
FiO_2	Fraction of inspired Oxygen

Abb.	Full term
FRC	Functional residual capacity
GA	Gestational age
g/dl	gram per deciliter
h	Hour
HFNC	High-flow nasal cannula
HFV	High-frequency ventilation
HHFNC	Humidified high-flow nasal cannula
HMD	hyaline membrane disease
IPPV	Intermittent positive pressure ventilation
IQR	interquartile range
Kg	Kilogram
I.M	Intramuscular
LMA	laryngeal mask airway
L-S	lecithin-sphingomyelin
mEq/L	milliequivalent per liter
mmHg	millimeters of mercury
mRNA	messenger ribonucleic acid
MV	Mechanical ventilation
n-BiPAP	Nasal bilevel positive airway pressure
n	number
NC	nasal cannulae
NCPAP	Nasal continuous positive airway pressure
NEC	necrotizing enterocolitis

Abb.	Full term
NHFV	nasal high-frequency ventilation
NICU	Neonatal Intensive Care Unit
NIPPV	Nasal intermittent positive-pressure ventilati
NIV	Noninvasive ventilation
NPCPAP	nasopharyngeal CPAP
NRS	Noninvasive respiratory support
NPSIMV	nasopharyngeal synchronized intermittent mandatory ventilation
$PaCO_2$	arterial carbon dioxide pressure
PaO_2	arterial oxygen pressure
PCO_2	carbon dioxide pressure
PDA	Patent ductus arteriosus
PEEP	Positive end expiratory pressure
PIP	Peak inspiratory pressure
PROM	Prolonged Rupture of Membranes
PVL	Periventricular leucomalacia
RCTs	randomized, controlled trials
RD	Respiratory distress
RDS	Respiratory distress syndrome
ROP	Retinopathy of prematurity
PIE	pulmonary interstitial emphysema
SD	standard deviation
SIMV	Synchronous intermittent mandatory ventilat

Abb.	*Full term*
SiPAP	sigh positive airway pressure
TV	Tidal volume
TLC	Total lung capacity
TRH	thyrotropin-releasing hormone
VILIs	ventilator induced lung injuries
VLBW	Very low birth weight
Vs	Versus
Wks.	weeks
WOB	Work of breathing
W.t.	Weight

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Introduction

Respiratory distress syndrome (RDS) formerly known as hyali membrane disease, is the major cause of neonatal respirato distress. RDS is a result of surfactant deficiency, which caus increased surface tension in the air-liquid interface of the termi respiratory units leading to atelectasis, increased ventilati perfusion mismatch, and potential lung injury due to a mark pulmonary inflammatory response. RDS is the most comm cause of respiratory distress in preterm infants because lu immaturity is associated with inadequate production of pulmon surfactant ***(Martin, 2015).***

RDS occurs primarily in premature infants; its inciden is inversely related to gestational age and birth weight. It occurs 60-80% of infants less than 28 weeks of gestational age, in 1 30% of those between 32 and 36 weeks, in about 5% beyond weeks ***(Dudell & Stoll 2012).***

In previous decades, it was common to initi endotracheal intubation and mechanical ventilation in neona with moderate or severe respiratory distress. However, it is n known that such actions may have adverse effects on t respiratory system ***(Ramanatha & Sadesai 2008).***

The overall concepts of ventilator induced lung injur (VILIs) are: Volu/barotrauma, injury related to lung ov distension; atelectrauma, injury caused by alveolar collap biotrauma, injury caused by hyperactive inflammatory respons secondary to bacterial airway colonization; and endotraun injury to the airway ***(Mahmoud et al., 2011).***

Improvements in the measurement of volume and flow modern neonatal ventilators have led to a variety of alternati non-invasive ventilation (NIV) procedures. NIV refers to a technique that uses constant or variable pressure to provi ventilatory support, but without tracheal intubation. Non-invasi respiratory support has been demonstrated to be less injurious the premature lung ***(Thomson et al., 2004).***

One of NIV is nasal continuous positive airway pressu (NCPAP) which was first described by ***Gregory et al., (1971)*** the treatment of newborns with respiratory distress. Gregor first description has paved the way for the use of CPAP as t primary treatment for preterm infants with respiratory distre Since that time, many prospective studies have shown improved survival of premature infants treated with early CP ***(Morley et al., 2008); (Roehr et al., 2011).***

Nasal intermittent positive pressure ventilation (NIPP is a noninvasive mode of ventilation that offers more ventilato support than NCPAP. NIPPV may be synchronized (SNIPPV) non-synchronized to the infant's breathing efforts. Thora abdominal motion asynchrony and flow resistance through t nasal prongs decrease in neonates on SNIPPV, with improv stability of the chest wall and pulmonary mechanics ***(Kiciman al., 1998***).

Moreover, delivering the peak inspiratory with little or deviation through the esophagus into the stomach, obtaining t double advantage of increasing tidal volume (Vt) and reducing t risk of gastrointestinal side effects. In doing so, it is also possil that NIPPV recruits collapsed alveoli and increases functio residual capacity ***(Kiciman et al., 1998***).

Aim of the study

The aim of this work is to compare the effect of nasal continuo positive airway pressure (NCPAP) and nasal intermittent positiv pressure ventilation (NIPPV) on preterm neonates w respiratory distress syndrome (RDS) in post-extubation period.