New modalities in pediatric mechanical ventilation

Essay submitted for partial fulfillment
Of Master Degree of Anesthesia

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Dedication

I take this opportunity to express my profound gratitude towards my family and a special feeling of gratitude to my loving parents whose words of encouragement and push for tenacity ring in my ears.

Lovingly, I dedicate this work to my respective family who has been my constant of inspiration.

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List of abbreviations

Abb	Mean
ETT	**Endotracheal tube**
FRC	**Functional residual capacity**
TLC	**Total lung capacity**
V_t	**Tidal volume**
V_D	**Dead space volume**
CV	**Closing volume**
$PEEP_i$	**Intrinsic positive end expiratory pressure**
IRV	**Inspiratory Reserve Volume**
ERV	**Expiratory Reserve Volume**
RV	**Residual Volume**
IC	**Inspiratory Capacity**
VC	**Vital Capacity**
NGT	**Nasogastric tube**
CL	**lung compliance**
RDS	**Respiratory distress syndrome**
V/Q	**Ventilation/Perfusion matching**
PEEP	**Positive end expiratory pressure**
URI	**Upper respiratory infection**
V_A	**Alveolar ventilation**
Pa_{O2}	**Arterial oxygen pressure**
$PaCO_2$	**Arterial carbon dioxide**
pCO_2	**Partial pressure of carbon dioxide**
$A\text{-}aDN_2$	**Alveolar-arterial nitrogen difference**
P_{50}	**Po_2 with 50% hemoglobin saturation**
HbA	**Adult hemoglobin**
HbF	**Fetal hemoglobin**
PCV	**Pressure controlled**

	ventilation
VCV	**Volume controlled ventilation**
CMV	**Controlled mandatory ventilation**
CPAP	**Continuous positive airway pressure**
PSV	**Pressure support ventilation**
AC	**Assist/control**
FiO_2	**Fraction of inspired oxygen**
IMV	**Intermittent mandatory ventilation**
SIMV	**Synchronized intermittent mandatory ventilation**
MMV	**Mandatory minute ventilation**
PAV	**Proportional assist ventilation**
FA	**Flow assist**
VA	**Volume assist**
BiPAP	**Biphasic positive airway pressure**
ASV	**Adaptive support ventilation**
VAPS	**Volume-assured pressure support**
VAT	**Ventilator associated tracheobronchitis**
PIP	**Peak inspiratory pressure**
VV+	**Volume ventilation plus**
VC+	**Volume control plus**
VS	**Volume support**
APC	**Adaptive pressure control**
PRVC	**Pressure regulated volume control**
NAVA	**Neurally adjusted ventilatory assist**
APRV	**Airway pressure release ventilation**
ARDS	**Adult Respiratory distress syndrome**

IRV	**Inverse ratio ventilation**
I time	**Inspiratory time**
E time	**Expiratory time**
I:E ratio	**Ratio of inspiratory time to expiratory time**
mPaw	**Mean airway pressure**
PC-IRV	**Pressure control-inverse ratio ventilation**
ATC	**Automatic tube compensation**
NIV	**Noninvasive ventilation**
LMA	**Laryngeal mask airway**
NIPPV	**Noninvasive positive pressure ventilation**
HFNT	**High flow nasal therapy**
OSA	**Obstructive sleep apnea**
MAS	**Meconium aspiration syndrome**
CHF	**Congestive heart failure**
TTN	**Transient tachypnea of the newborn**
N-CPAP	**Nasal CPAP**
IPAP	**Inspiratory positive airway pressure**
EPAP	**Expiratory positive airway pressure**
ICUs	**Intensive care units**
TTs	**Tracheal tubes**
ALI	**Acute lung injury**
HFV	**High frequency ventilation**
HFPPV	**High frequency positive pressure ventilation**
HFOV	**High frequency oscillatory ventilation**
HFJV	**High-frequency jet ventilation**
PIE	**Pulmonary interstitial emphysema**
PVR	**Pulmonary vascular resistance**

VARI	**Ventilator-Associated Respiratory Infections**
PICU	**Pediatric intensive care unit**
MODS	**Multiple organ dysfunction syndrome**
EAdi	**Electrical activity of the diaphragm**
VILI	**Ventilator-Induced Lung Injury**
VAP	**Ventilator-associated pneumonia**

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Introduction