

Management of the Difficult Weaning from Mechanical Ventilation

Essay

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وَقُلْ اَعْمَلُوا فَسَيَرَى اللّٰهُ
عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ





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Contents

Subjects	Page
List of Abbreviation	I
List of Tables	V
List of Figures.....	V
Introduction	1
Aim of the work.....	2
Physiology of respiration and lung mechanics.....	3
Pathophysiology of mechanical ventilation and lung mechanics.....	27
Causes of difficult weaning from mechanical ventilation.....	59
Management of difficult weaning from mechanical ventilation.....	85
Summary.....	134
References.....	138
Arabic summary	

List of Abbreviations

ALS	:	Amyotrophic lateral sclerosis
ARDS	:	Acute respiratory distress syndrome
A_s	:	Surface area
ATC	:	Automatic tube compensation
BMI	:	Body mass index
BNP	:	B type natriuretic peptide
C	:	Celsius
C_{dyn}	:	Dynamic compliance
CO	:	Carbon monoxide
CO₂	:	Carbon dioxide
COPD	:	Chronic obstructive pulmonary diseases
CORE	:	Compliance – Oxygenation – Respiratory effort
CPAP	:	Continuous positive air way pressure
CROP	:	Compliance – Rate – Oxygenation - Pressure
CRP	:	C- reactive protein
C_{st,rs}	:	Static compliance of respiratory system
C_{tl}	:	Total compliance
DLCO	:	Diffusion capacity of lung to carbon monoxide
EMG	:	Electromyography
ERV	:	Expiratory reserve volume
ETT	:	Endotracheal tube

F	: Frequency
FFM	: Fat free mass
FIO₂	: Fraction of inspired oxygen
FRC	: Functional residual capacity
GBS	: Guillien Barre syndrome
GINA	: Global initiative for asthma
IC	: Inspiratory capacity
ICU	: Intensive care unite
IEQ	: Inspiratory effort quotient
IMV	: Intermittent mandatory ventilation
IRV	: Inspiratory reserve volume
IWI	: Integrating weaning index
Kg	: Kilogram
LTOT	: Long term oxygen therapy
LV	: Left ventricle
Mcg	: Microgram
MG	: Myasthenia Gravis
MIF	: Maximum inspiratory air flow
Min	: Minute
mmHg	: Millimeter mercury
MS	: Multiple sclerosis
MV	: Mechanical ventilation

NMD	:	Neuro muscular disorders
NPPV	:	Noninvasive positive pressure ventilation
NT-	:	N terminal B type natriuretic peptide
BNP		
NVE	:	Neuro ventilatory efficiency
O₂	:	Oxygen
PaCO₂	:	Arterial carbon dioxide tension
PAO₂	:	Alveolar oxygen tension
PaO₂	:	Arterial oxygen tension
PAOP	:	Pulmonary artery occlusion pressure
PEEP	:	Positive end expiratory pressure
PEEPi	:	Intrinsic positive end expiratory pressure
PH	:	Pulmonary hypertension
PIP	:	Peak inspiratory pressure
PLR		Passive leg raising
PMV	:	Prolonged mechanical ventilation
P_{plt}	:	Plateau pressure
PSV	:	Pressure support ventilation
P-V	:	Pressure – volume loop
loop		
R_{aw}	:	Air way resistance
RSBI	:	Rapid shallow breathing index

RV	:	Residual volume
RV	:	Right ventricle
SaO₂	:	Arterial oxygen saturation
SBT	:	Spontaneous breathing trial
SMA	:	Spinal muscular atrophy
SPO₂	:	Oxyhemoglobin saturation
T_i	:	Inspiratory time
TLC	:	Total lung capacity
TRALI	:	Transfusion related acute lung injury
TTE	:	Trans-thoracic echocardiogram
T_{TOT}	:	Respiratory duty cycle
Va/Q	:	Ventilation perfusion ratio
VC	:	Vital capacity
V_T	:	Tidal volume
WI	:	Weaning index
WOB	:	Work of breathing

List of tables

Table	Title	page
1	Neuromuscular disease affecting respiratory function	63
2	Causes of difficult weaning from mechanical ventilation	83
3	Required and additional criteria for weaning	92

List of figures

Fig.	Title	page
1	Respiratory excursions during normal breathing and during maximal inspiration and maximal expiration	5
2	The distribution of alveolar ventilation (VA), pulmonary blood flow (Q), and the ventilation: perfusion ratio (VA/Q) in a normal lung	12
3	Ultrastructure of the alveolar respiratory membrane, shown in cross section	14
4	Organization of the respiratory center	18
5	Hydrogen ions stimulate the chemo-sensitive area, but carbon dioxide in the fluid gives rise to most of the hydrogen ions	23
6	Respiratory control by peripheral chemoreceptors in the carotid and aortic bodies	25
7	High power photomicrograph shows alveoli containing capillaries within a narrow interstitium	30
8	Photomicrograph shows early diffuse alveolar damage with minimal alveolar septal thickening, hyperplasia of pneumocytes, and eosinophilic hyaline membranes	32

Fig.	Title	page
9	High power photomicrograph shows changes typical of the proliferative or late stage of diffuse alveolar damage	33
10	Inflammatory and immune cells involved in COPD	39
11	Airflow limitation in COPD	40
12	Mucociliary effects in COPD airway	41
13	Development of pulmonary hypertension in COPD	43
14	pressure, flow and volume against time and auto peep appears in the pressure-time curve	50
15	Pressure-time diagram for volume controlled constant flow ventilation	52
16	Pressure-time diagram for pressure controlled ventilation.	52
17	Volume-time diagram for pressure controlled ventilation	53
18	Volume-time diagram for volume controlled ventilation	53
19	Volume-pressure loop showing upward moving of the loop due to COPD	55
20	Volume-pressure loop showing downward moving of the loop due to ARDS	55
21	Normal Flow – Volume loop	56
22	Flow – Volume loop in COPD	57
23	Flow – Volume loop in ARDS	58

Fig.	Title	page
24	Diaphragmatic contraction in M-mode sonography during a spontaneous breathing trial in a patient suffering from critical illness neuromyopathy	67
25	Ultrasonographic M-mode images from the right hemidiaphragm	68

Introduction

Aim of the Work

Physiology of mechanical ventilation and lung mechanics
