Masterclass Certificate in Neonatal Ventilation

Pharmacological Interventions

A

Apnea: The temporary cessation of breathing, which can be a common issue in premature infants due to their immature respiratory control center.

Adrenaline (Epinephrine): A medication commonly used in neonatal ventilation to help improve respiratory function by dilating the bronchioles and increasing heart rate.

Atelectasis: The collapse of a part or all of the lung, which can lead to decreased oxygenation and ventilation.

B

Bag-valve-mask (BVM) ventilation: A manual technique used to provide positive pressure ventilation to neonates by squeezing a bag attached to a face mask.

BiPAP (Bilevel Positive Airway Pressure): A form of non-invasive ventilation that delivers two levels of pressure, higher during inspiration and lower during expiration, to help keep the airways open.

C

Continuous Positive Airway Pressure (CPAP): A form of non-invasive ventilation that delivers a continuous pressure to the airways, helping to keep the lungs inflated and improve oxygenation.

Compliance: Refers to the ability of the lungs to expand and contract, which can be affected by various factors such as the elasticity of the lung tissue and the resistance of the airways.

D

Dead space: The portion of the respiratory system where gas exchange does not occur, such as the trachea and bronchi, which can impact ventilation efficiency.

Dexamethasone: A corticosteroid medication used in neonatal ventilation to reduce inflammation in the airways and improve respiratory function.

E

Endotracheal intubation: The placement of a tube into the trachea to provide mechanical ventilation directly

to the lungs, often used in neonates with severe respiratory distress.

Expiratory time constant: The time it takes for the lungs to completely empty during expiration, which can be affected by factors such as airway resistance and lung compliance.

F

FiO2 (Fraction of Inspired Oxygen): The percentage of oxygen in the air being delivered to the patient, which can be adjusted to improve oxygenation in neonates.

Flow sensor: A device that measures the flow of gas during ventilation, providing feedback on the effectiveness of the respiratory support being delivered.

G

Gas exchange: The process by which oxygen is taken in and carbon dioxide is removed from the bloodstream, essential for maintaining adequate oxygenation and ventilation.

Grunt: A sound made by infants during expiration to help keep the airways open and improve lung function, commonly seen in neonates with respiratory distress.

H

High-frequency oscillatory ventilation (HFOV): A form of mechanical ventilation that delivers very rapid breaths at a high frequency, which can help improve oxygenation and ventilation in neonates with severe lung disease.

Humidification: The process of adding moisture to the inspired air to prevent drying of the airways, which can be important in neonatal ventilation to maintain lung function.

I

Intermittent positive pressure ventilation (IPPV): A form of mechanical ventilation that delivers breaths at set intervals and pressures, commonly used in neonates with respiratory distress.

Intratracheal surfactant therapy: The administration of surfactant directly into the trachea to improve lung compliance and prevent atelectasis in premature infants.

J

Jaundice: A condition characterized by the yellowing of the skin and eyes due to elevated levels of bilirubin in the blood, which can impact neonatal ventilation by affecting liver function.

Jet ventilation: A technique that uses a high-velocity jet of gas to deliver breaths to the patient, which can

be useful in neonates with upper airway obstruction.

K

Kangaroo care: Skin-to-skin contact between the parent and infant, which has been shown to improve respiratory function and oxygenation in premature neonates.

Kinked endotracheal tube: A common issue in neonatal ventilation where the breathing tube becomes bent or twisted, leading to inadequate delivery of respiratory support.

L

Laryngoscopy: A procedure used to visualize the larynx and vocal cords, often performed before intubation to ensure proper placement of the endotracheal tube.

Lung compliance: The ability of the lungs to expand and contract, which can be affected by factors such as surfactant levels and lung maturity.

M

Mechanical ventilation: The use of a machine to deliver breaths to the patient, commonly used in neonates with respiratory distress to support adequate oxygenation and ventilation.

Milrinone: A medication used in neonatal ventilation to help improve heart function and increase cardiac output, which can be important in maintaining adequate oxygenation.

N

Neonatal resuscitation: The process of providing respiratory support to newborn infants who are not breathing or are experiencing respiratory distress, commonly performed in the delivery room.

NICU (Neonatal Intensive Care Unit): A specialized unit in the hospital that provides care for critically ill newborn infants, including those requiring respiratory support.

O

Oxygen saturation: The percentage of hemoglobin in the blood that is saturated with oxygen, which is an important measure of oxygenation in neonatal ventilation.

Oxygen toxicity: A condition that can occur when high levels of oxygen are delivered for prolonged periods, leading to lung damage and inflammation in neonates.

P

Peak inspiratory pressure: The maximum pressure reached during inspiration, which can be monitored to ensure safe and effective delivery of mechanical ventilation to neonates.

Patent ductus arteriosus (PDA): A common heart condition in premature neonates where a blood vessel fails to close after birth, which can impact respiratory function and oxygenation.

Q

Quality improvement: A systematic approach to improving processes and outcomes in neonatal ventilation, which can involve monitoring performance metrics and implementing changes to optimize care.

Quinidine: A medication used in neonatal ventilation to treat arrhythmias and improve cardiac function, which can be important in maintaining adequate oxygenation.

R

Respiratory distress syndrome (RDS): A common condition in premature neonates characterized by surfactant deficiency, which can lead to atelectasis and impaired gas exchange.

Respiratory rate: The number of breaths taken per minute, which can be adjusted during mechanical ventilation to optimize oxygenation and ventilation in neonates.

S

Surfactant: A substance produced by the lungs that helps reduce surface tension and keep the alveoli open, essential for maintaining lung compliance and preventing atelectasis.

Synchronized intermittent mandatory ventilation (SIMV): A mode of mechanical ventilation that allows the patient to breathe spontaneously between set breaths, which can help prevent respiratory muscle fatigue.

T

Transcutaneous oxygen monitoring: A non-invasive method of measuring oxygen levels through the skin, which can be useful in monitoring oxygenation in neonates receiving mechanical ventilation.

Thoracentesis: A procedure used to remove fluid or air from the pleural space around the lungs, which can be necessary in neonates with respiratory distress.

U

Umbilical artery catheter: A thin tube inserted into the umbilical artery to monitor blood pressure and obtain blood samples, commonly used in neonates requiring intensive care.

UVC (Umbilical venous catheter): A thin tube inserted into the umbilical vein to deliver medications and

nutrients directly into the bloodstream, often used in neonates requiring intravenous support.

V

Ventilator-associated pneumonia (VAP): A type of lung infection that can occur in neonates receiving mechanical ventilation, which can be prevented by following strict infection control measures.

Ventilator-induced lung injury: Damage to the lungs caused by mechanical ventilation, which can result from high pressures, excessive oxygen levels, or inadequate ventilation strategies.

W

Warmed humidified gases: Inspired gases that have been heated and humidified to prevent drying of the airways and improve comfort during mechanical ventilation in neonates.

Wheezing: A high-pitched sound heard during expiration, often caused by narrowing of the airways, which can be a sign of respiratory distress in neonates.

X

X-ray: A diagnostic imaging test used to visualize the lungs and airways, which can be helpful in assessing lung function and monitoring changes in neonates receiving mechanical ventilation.

Xanthine derivatives: A class of medications used in neonatal ventilation to relax the smooth muscles of the airways and improve respiratory function, commonly used in neonates with bronchopulmonary dysplasia.

Y

Yankauer suction: A type of suction catheter commonly used in neonatal ventilation to remove secretions from the airways, helping to maintain clear breathing passages.

Yellow nail syndrome: A rare condition characterized by yellow, thickened nails and respiratory symptoms, which can impact neonatal ventilation by affecting lung function.

Z

Zinc supplementation: The provision of zinc to neonates to support immune function and growth, which can be important in maintaining overall health and respiratory function.