Choosing a Ventilator Mode

- **Assisted Ventilation (AV)**: This mode is used to provide ventilatory support during periods of sequela or MEIS.
- **Pressure Support (PS)**: Also used in non-spontaneous breathers or MEIS.
- **Assisted Control Pressure (ACP)**: This mode can be used with non-spontaneous breathers or MEIS.

**Respiratory Mechanics**

- **T1**: Time (s) required for tidal volume (Vt).
- **Ttot**: Total respiratory cycle (s) = I:E + T1 + T1.

**Volume Control**

- **PEEP (Continuous Flow)**: Consistently delivers pressure below the airway closure pressure.
- **I:E (I:E ratio)**: Inspiratory:Espiratory.
- **IAP**: Inspiratory Airway Pressure
- **IPAP**: Inspiratory Pressure
- **EPAP**: Expiratory Pressure
- **Pplat**: Plateau pressure
- **Pd**: Dynamic Pressure
- **Pdmax**: Maximum dynamic pressure
- **MIP**: Maximum Inspiratory Pressure
- **PTEP**: Target Expiratory Pressure
- **Ppaw**: Peak Airway Pressure
- **Paw**: Airway Pressure
- **Cdyn**: Dynamic Compliance
- **PFC**: Pressure Flow Curve
- **Δ**: Change in
- **Taw**: Time constant
- **RR**: Respiratory Rate
- **MV**: Minute Volume
- **Fo2**: Fractional Oxygen

**Volume Calculations**

- **Predicted Body Weight (PBW)**: Calculated using the formula: PBW (kg) = (height in cm - 100) / 2.

**Other Names**

- **AC-P**: Assisted Control Pressure
- **CMV**: Controlled Mechanical Ventilation
- **PS**: Pressure Support
- **PC**: Pressure Control
- **P-D**: Pressure-Flow
- **V-C**: Volume Control
- **VC**: Volume Control
- **CMV (Controlled Mechanical Ventilation)**
Lung-Protective Ventilation (LPV)

### Ventilator Setup (prior to connecting patient)
- **Respiratory Care, Setup, & Monitoring**
  - Impact on setup: **for ventilation, endotracheal tube placement, and mechanical ventilation.**
  - Ventilator setup: Review case notes, check vital signs, and prepare patient for intubation.
  - Ensure gas supply connected.
  - Practice the use of single-use or reusable endotracheal tubes and mask (manufacturer test passed).
  - Verify circuit integrity: Gas flow and pressure alarms, setpoints, and alarms are in place.
  - Set tidal volume, flow, respiratory rate, and other parameters as indicated.
  - Ensure gas flow rates are within accepted limits.
  - Ventilator alarms: Set in place and test.

### Ventilator Performance
- **Perfect tidal volume (SV; PIP, PEEP, FiO2, PS) and VT**
  - VT should be set to maintain oxygen saturation above 90%.
  - PEEP and FiO2 should be set to maintain blood pressure and oxygen saturation.
  - PS should be set to maintain oxygen saturation above 90%.

### Pneumothorax, External Filters, and Circuit Hygiene
- **Pneumothorax**
  - Pneumothorax is a medical emergency and should be treated immediately.
  - Treatment: Immediate intervention with chest tube placement.
  - Prevention: Inspection of the circuit and ETT for any leaks or damage.

### Adult Respiratory Distress Syndrome (ARDS)
- **Total Volume (VT)**
  - **(Gain-4 mL/kg)**

### Airways, Gas Exchange, & Respiratory Mechanics
- **Caution**
  - Avoid high PEEP and low FIO2 settings as they can lead to respiratory failure.

### Additional LPV Reference Calculations

### Predicted Body Weight (PBW) (kg)

### Oral & Nasal Disturbances
- **Madaka (G0; PIP & PEEP)**

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### Exposure to Invasive Ventilation
- **Exposure to invasive ventilation**
  - Exposure to invasive ventilation can cause respiratory failure and respiratory distress syndrome.

### Patient/Ventilator Dysynchrony
- **Patient/Ventilator Dysynchrony**
  - Patient/Ventilator Dysynchrony (PVD) occurs when the patient and ventilator are not synchronized.
  - Symptoms: Increased work of breathing, increased oxygen demand, and decreased patient comfort.

### Discomfort & Delirium
- **Discomfort & delirium**
  - Discomfort and delirium are common complications of mechanical ventilation.
  - Management: Pain management and delirium prevention are crucial.

### General Considerations
- **General Considerations**
  - Important considerations for ARDS, hypoxemia, and hypoxemia with inotropic support.
  - Monitoring: Oxygen saturation, blood pressure, and heart rate.

### Lung-Protective Ventilation (LPV)
- **Lung-Protective Ventilation (LPV)**
  - Lung-Protective Ventilation (LPV) is a ventilation strategy used to reduce lung injury and improve oxygenation.
  - Goals: Targeting tidal volume, PEEP, and positive end-expiratory pressure (PEEP) to minimize lung injury.

### Adjunctive Therapies for ARDS Hypoxemia
- **Adjunctive Therapies for ARDS Hypoxemia**
  - Adjunctive therapies include high-flow oxygen therapy, NIV, and inotropic support.
  - Monitoring: Oxygen saturation, blood pressure, and heart rate.

### Ventilator Weaning & Exubtuation
- **Ventilator Weaning & Exubtuation**
  - Ventilator weaning and extubation are important steps in the management of mechanical ventilation.
  - Criteria: Patient ready for extubation, clear airway, and stable respiratory function.

### Discomfort, Gagging, Anxiety, & Delirium
- **Discomfort, gagging, anxiety, & delirium**
  - Management: Pain management and delirium prevention are crucial.
  - Sedation: Use with caution to minimize respiratory depression.

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