AIRWAY PRESSURE RELEASE VENTILATION (APRV)

What is it?

There are two level of pressure (Pigh and Plow) applied for to independent times (Thigh and Tlow). Spontaneous breathing is possible every time during the ventilation. The brief pressure relief times (Tlow) is used to eliminate CO₂ from the lungs of the patients. The Tidal volume is created by the difference between Pigh and Plow and from the spontaneous efforts of the patient.

Which are the settings?

**Phigh**
- Set plateau pressure or peak pressure set during conventional ventilation (25-35 cmH₂O)
- Based on oxygenation index
- Based on pressure volume curve
- Pigh > 35 cmH₂O maybe necessary in morbid obesity or in other condition associated with low chest wall compliance
- Pigh > 25 cmH₂O consider use of non-compliant circuit

**Plow**
- Set at 0 cmH₂O (correct setting of Tlow will create intrinsic PEEP)

**Other settings**
- Tube compensation up to 100% (if available)
- Pressure Support = 0 cmH₂O

**AUTORELEASE®**
- In the past, Tlow had to be adapted manually to changing respiratory flow patterns
- With AutoRelease, Tlow is automatically optimized to terminate expiration at a certain percentage of peak expiratory flow
- Keeping endexpiratory lung volume and CO₂ removal can be well balanced even in light of changing respiratory mechanics and expiratory flow patterns

When should APRV be applied?

When is it suggested to use APRV? In which kind of patients?
- Hypoxic respiratory failure (including ARDS) with/without associated (not primary i.e., severe asthma) hypercapnia
- Patients with Acute Lung Injury
- Patients with atelectasis after major surgery

Why is it helpful to improve outcome?
- Alveolar recruitment and improved oxygenation
- Preservation of spontaneous breathing – less sedation
- Better ventilation of dependent areas
- Keep the lung open