APRV - Overview

Airway pressure release ventilation (APRV) uses prolonged periods of high continuous positive airway pressures interrupted by brief episodes of pressure release to a lower pressure.

- Intended as a rescue therapy for severe ARDS (low lung compliance with high oxygenation requirements)

**Description**

- Two levels of airway pressure: P(high) and P(low)
- **P**(high) set at desired plateau pressure (hence dictates arterial oxygenation and risk of alveolar baro/volutrauma)
- **P**(low) set to prevent de-recruitment of alveoli during pressure release
- **T**(high) (>85% of cycle time) determines time spent at P(high) to maintain alveolar recruitment
- **T**(low) determines time spent at P(low), very brief to prevent alveolar de-recruitment

**Advantages:** Alveolar recruitment and improved oxygenation, preservation of spontaneous breathing, lower sedation requirements

**Disadvantages:** Risk of volutrauma, increased work of breathing and energy expenditure, consistently increased intrathoracic pressures may adversely affect hemodynamics

**Suggested Initial settings**

- **P**(high) = Plateau pressure (Keep <30cmH20)
- **P**(low) = 0-5 cmH20
- **T**(high) = 4.5 – 6 seconds
- **T**(low) = 0.5-0.8 seconds

**References:**

- Myers TR, MacIntyre NR. Respiratory controversies in the critical care setting. Does airway pressure release ventilation offer important new advantages in mechanical ventilator support? Respir Care. 2007 Apr;52(4):452-8; discussion 458-60