CRITCARE BITES
ARDS: Prone Positioning

How does prone positioning help in ARDS?

- ARDS predominantly affects dorsal part of the lungs → Baby lung concept – Lungs in ARDS are small because the posterior parts of lungs are oedematous (collapsed/shunting), hence air only enters less affected ventral aspects (overall small lung volume) → The small functional volume of lungs are thus subject to VILI as most of the transpulmonary forces are delivered to these areas
- Prone positioning more evenly distributes volume and pressure delivered by mechanical ventilation
    - Offloads dorsal part of lungs (previously compressed by bed at back, and weight of lungs and heart in front) to allow recruitment
    - Volume and pressure that is provided becomes more homogeneously distributed
- Two outcomes
    - Recruitment of dorsal lungs → less shunting → improvement in oxygenation
    - Homogenisation of volume and pressure distribution → reduces VILI

What are the indications for prone positioning in ARDS?

- PF ratio < 150 in ARDS despite PEEP optimisation (at least ~ 12-15)
- Awake prone positioning in non-intubated patients with COVID pneumonia – *evidence seems to be stronger in patients on HFNC/CPAP*
    - Limitation of patient tolerability with awake prone positioning

What is the evidence behind prone positioning?

- PROSEVA Trial, NEJM 2013
    - In patients with ARDS with PF ratio < 150
    - Mortality reduced by half (16% vs 32.8%)

What are the practical considerations of prone positioning?

- Awake prone positioning in COVID pneumonia
    - Practically easier for HFNC
    - At least 5-6 hours/day
- Intubated/sedated prone positioning in severe ARDS
    - For how long?
        - 16 hours of prone positioning followed by 4 hours of supine positioning
        - If PF ratio < 150 in supine positioning, repeat prone positioning
    - Precautions
        - Don't forget to actually consider prone positioning
        - Tubes and lines: Caution with dislodgement while turning, remember to set the lines before prone positioning
        - Turning should be performed with at least 5 people
        - Protection of pressure points on face: Regular turning, use of bean bags
    - Contraindications
        - Severe intrabdominal hypertension, major abdominal surgery
        - Haemodynamic instability may not be an absolute contraindication – haemodynamics can still be supported with vasopressors, risks and benefits must be carefully weighed