How to Perform a Spontaneous Breathing Trial

Assess Suitability (Walsh criteria)\(^2\)

- Co-operative and pain free
- \(\text{PaO}_2 : \text{FiO}_2 \) ratio > 24 kPa
- \(\text{Hb} > 7 \text{ g/dL} \)
- Vasoactive drugs reduced or unchanged over previous 24 h
- Spontaneous ventilatory frequency > 6 min\(^{-1}\)
- Good cough
- PEEP \(\leq 10 \text{ cmH}_2\text{O}\)
- Temperature 36 - 38.5°C

Convert to pressure support ventilation

- Titrate pressure support to achieve:
  - Patient comfort
  - Tidal volumes of 6-8 mL/kg ideal body weight
  - Respiratory rate < 30 min\(^{-1}\)
- If stable for 60 minutes, proceed to SBT

Commence SBT

- 3 Options:
  - Reduce pressure support to 5 - 7 cm H\(_2\)O
  - External CPAP only
  - T-piece / Trache mask (if tracheostomy in situ already)

Observe patient for signs of distress or fatigue

- Stop SBT and revert to previous ventilator settings if the following occur (e.g.):
  - RR > 50% baseline or > 35 min\(^{-1}\)
  - \(\text{pH} < 7.32\) or fall by \(\geq 0.1\) units
  - Saturation < 90% on \(\text{FiO}_{2}\) of > 0.5
  - \(\text{PaCO}_2 > 6.5\) or increase by > 1 kPa
  - Rapid Shallow Breathing Index (Respiratory rate (min) / Tidal volume (L)) > 105 min\(^{-1}\)L\(^{-1}\)
  - Significant dysrhythmias, tachycardia or bradycardia
  - Increase respiratory effort, sweating or other evidence of patient distress
  - Agitation or depressed mental status
  - Observe for at least 30 minutes and up to 2 hours

Continue ventilation or consider for extubation

- If patient passes the SBT, consider whether extubation is the next appropriate step
- If the patient fails the SBT, return to previous ventilator settings and allow the patient to recover

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1 Adapted from the SBT protocol of the Breathe Study (ISRCTN15635197)