Workflow for ventilation with Ventrain and Tritube | elective use | adult patient

1. Inflate cuff – check for leakage - deflate cuff.
2. Lubricate cuff (for instance with lidocain gel - 4%) and fold cuff around Tritube.
3. Visually assess larynx and remove secretions if present.

4. **Oral intubation**
   - Bend tube in curve required for intubation.
   - Local anesthetics may be applied topically to pharynx.
   - Advance Tritube from stylet after the tip has passed the vocal cords.

   **Nasal intubation**
   - Remove stylet.
   - Local anesthetics may be applied topically to nasal cavity.
   - Intubate Tritube.

5. Flush pressure lumen with saline/air to ensure absence of any obstructions.
6. Set gas flow at 15 L/min using a pressure compensated flow regulator.
7. Connect Ventrain (orange connector) and manometer (grey connector) to Tritube.
8. Suggested: perform 2-3 ventilation cycles with deflated cuff to confirm (limited) pressure readings on manometer.

9. Inflate cuff.
10. Continue ventilation:
    - Observe the patient’s chest excursions.
    - Ventilate between PEEP and Peak pressure.
    - Flush pressure / ventilation lumen with saline followed by air, in case of (near) obstruction.
    - Note that exhaled gases (and potentially secretions) exit via the thumb hole.
    - Volumes may be calculated based on flow and time (see table below).
    - Remove thumb and index finger from Ventrain (equilibration) in case of distraction or any doubt.
    - Ventrain is functionally switched off, allowing passive expiration.

<table>
<thead>
<tr>
<th>Flow (L/min)</th>
<th>6</th>
<th>10</th>
<th>12</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume (mL) in 1 second</td>
<td>100</td>
<td>167</td>
<td>200</td>
<td>250</td>
</tr>
</tbody>
</table>

See next page for capnometry, extubation and materials >>
Capnometry

Note that a reliable etCO₂ measurement requires gas sampling during an equilibration phase and a sealed airway (inflated cuff):

1. Perform capnography via the side port of Ventrain.
2. A filter may be used to avoid contamination of the capnometer.
3. Insufflate to aimed intratracheal Peak pressure.
4. Start equilibration phase.
5. Read CO₂ value from curve when a plateau is nearly reached (taking approx. 5-8 seconds).
6. Resume ventilation.

Extubation

1. Stop TIVA.
2. Perform oral/pharyngeal suctioning to remove secretions if needed.
3. Deflate cuff, while continuing Ventrain ventilation and monitoring intratracheal pressures.
   An open airway results in less pronounced pressure build-up.
   Intratracheal pressure build-up may appear during wakening, indicating an increased glottic functioning.
4. After wakening, confirm patient’s ability to cough and inhale upon request (if not done spontaneously).
5. Extubate Tritube after confirmed stability of patient and his/hers airway.

See next page for workflow ventilation Ventrain and Tritube

Materials

- Ventrain
- Tritube
- Manometer
- Lubricant (e.g. 4% lidocaine gel)
- Syringe with saline
- Syringe empty
- Side stream capnometer with liquid trap and/or filter
- Capnometer tubing with male Luer slip connector
- High pressure oxygen source with pressure compensated flow regulator
- TIVA

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Instructions for Use of Ventrain, Tritube