OmniOx (HFT 500)

Jan. 2013. Prepared by MEKICS
0. Index

1. Introduce of OmniOx (HTF500)

2. Specification (HFT, CPAP+)

3. The World Best Features
1. Introduce

1. What is **High Flow Therapy’s Definition?**
   - Flows that exceed patient demands at various minute volumes

2. How does HFT impact breathing?
   - CO2 Ventilation
     - Washout of the nasopharyngeal dead space
   - Efficient Oxygenation
   - Work of Breathing
     - Reduction in inspiratory resistance associated with gas flow through the nasopharynx
   - Energy Cost of Gas Conditioning
     - Improvement in respiratory mechanical parameters associated with gas temperature and state of humidification
     - Reduction in metabolic work associated with gas conditioning
   - Provision of mild distending pressure
1. Introduce

3. Must reduce the dead space of Upper Airway (the nasal cavity)

- Circulation and Maintain of fresh air (minimized dead space)
- Appropriated PEEP (airway security)
- Minimized resistance of exhalation (efficiency of CO2 deflation and optimized positive pressure)

→ The best solution is "JET FLOW EFFECT"
4. CO2 Ventilation

✓ Washout of nasopharyngeal dead space
✓ Improved fractions of alveolar gases with respect to carbon dioxide
✓ Low flow nasal cannula therapy is only thought to facilitate oxygenation
✓ HFT impacts CO2 elimination

Flushing of dead space in the Nasopharyngeal cavity helps Enhance alveolar ventilation
5. Efficient Oxygenation

- High inspired oxygen fractions by eliminating room air entrainment during inspiration
- Improve alveolar oxygen fractions beyond mask therapy based on the equation for alveolar ventilation
- Patients can often maintain better oxygenation or require a lower FiO2 compared to conventional mask or cannula therapies
6. Work of Breathing (WOB)

- HFT provides enough flow to match or exceed a patient’s inspiratory flow
- HFT most likely minimizes the inspiratory resistance associated with the nasopharynx
- Adequate warming and humidification of the conducting airways by delivery of warm, humid gas is associated with improved conductance and pulmonary compliance compared to dry, cooler gas
- Delivery of breathing gases at body temperature and saturation promotes an ideal respiratory mechanical response
1. Introduce

7. Energy Cost of Gas Conditioning

- The nasal air passages expend energy to warm inspiratory air from ambient to 37 °C and vaporize water to humidify the incoming air to 100% relative humidity

- Alleviated when gas is delivered at body temperature and saturated
1. Introduce

8. ACPAP+ ?

- Unique technology for the first time by MEKICS in the World
  - New concept of positive pressure support for easy exhalation that support inspiration in inhalation of breath and interrupt the flow quickly in exhalation
  - Same effect but more comfortable to inhale and exhale both together so it is basically big different with CPAP.

- Clinical effect of comfortable breathing
  - Most of case of CPAP patient needs to have adaptation period due to uncomfortable
  - Increase of WOB, and disturb of stable sleeping
  - Clinical effect beside the ventilation only.
1. Introduce

**ACPAP+® (Adaptive CPAP & PSV)**

- Positive Pressure Support, Lower expiration resistance as support of inspiration
- Maintain of airway and comfortable breathing

![Diagram of ACPAP’s Pressure – Flow](image)

- **Easy to breathing?**
  - Possible to support of inspiration and low of expiration resistance
- **Support of Inspiration:** PSV Trg
- **Expiration Resistance:** Ex_Sen, ExTime
1. Introduce

HFT500 Target Market

- Level of Acuity
  - Acute Phase
  - Weaning Phase

- Respiratory Therapy
  - Low Flow $\text{O}_2$ Therapy <4LPM
  - High Concentration Face Mask
  - NIV
  - Invasive Ventilation
  - NIV
  - High Concentration Face Mask
  - Low Flow $\text{O}_2$ Therapy <4LPM

HFT500 Target Market

OmniOx-HFT500 Jan. 2013 ver1.1
2. Specification

● Functions
  ➢ General
    ✓ 4.3” Color TFT, Touch Screen, Knob
    ✓ Mode : HF/CPAP, PS/CPAP
    ✓ O2 Mixer
    ✓ FiO2, Respiration, SpO2 Monitoring
    ✓ Built in Humidifier
  ➢ HF/CPAP : Flow(Lpm), O2(%) 
  ➢ PS/CPAP : PSV, PAP, Trigger, ExTime, Ex_Sense, O2(%), Wake-up

● Performance
  ➢ Pressure : Up to 100cmH2O
  ➢ Flow : Up to 160 Lpm / 60 Lpm (HFT)
  ➢ O2 : 21 ~ 100%
## 3. The World Best Features (HF/CPAP)

<table>
<thead>
<tr>
<th></th>
<th>MEKICS</th>
<th>Competitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow /Pressure</td>
<td>10~ 60 lpm</td>
<td>10 ~ 40 lpm(60lpm)</td>
</tr>
<tr>
<td>Drive Power</td>
<td>Up to 100cmH2O</td>
<td>Up to 40cmH2O</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. The World Best Features (PS/CPAP)

ACPAP®
PSV at Ins. Phase
Quick Pause in Exp. Phase

<MEKICS>

<Competitors>

PSV, Easy Expiration
Quick Pause

Pressure
Trigger
Flow -Machine
Flow -Patient

Pressure
No- PSV, Expiratory Effort
Flow -Machine
Flow -Patient
Ex. time
References


References


Thanks for your attention