One Year Review of High Flow Oxygen Delivery System Outcomes

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Introduction

• Improving gas exchange and decreasing work of breathing are clinical endpoints when managing patients with respiratory failure.
• Often the interventions are to provide high flow oxygen via a mask or more aggressive form of clinical management such as non-invasive or mechanical ventilation.
• High Flow Oxygen (HFO) delivery system provide an alternative or a bridge between high flow oxygen administration and forms of ventilation.

High Flow Oxygen

• High Flow Oxygen can be provided via a nasal cannula or via a tracheal adapter.
• Providing flow rates up to fifty liters a minute, delivers high molecular humidity and allows precise oxygen delivery.
• It may reduce the need for Non-invasive Ventilation (NIV) and intubation in selected patient populations.

High Flow Oxygen Delivery Systems

Methods

• We examined the number of patients who were placed on HFO over a twelve month time frame in our medical-surgical ICU.
• All patients placed on HFO either had a SpO2 <88% or had an increased work of breathing (noted by a respiratory rate >30 or the use of accessory muscles).
• Reasons for HFO flow utilization, duration of use, number of times placed on HFO and therapy outcomes were assessed.

Results

• Two hundred patients, 120 males and 80 females, were placed on HFO from January 1, 2013 to December 31, 2013.
• Patient ages ranged from twenty-one to ninety years old.
• One Hundred thirty-three patients (67%) were placed on HFO for the improvement of oxygenation and 67 patients (31%) were placed for increased work of breathing or for humidification enhancement.

Conclusion

• The utilization of High Flow Oxygen allowed our clinician team to improve oxygenation and decrease work of breathing without the need for the institution of non-invasive or invasive mechanical ventilation in over fifty percent of patients who were placed on it and ICU length of stay was reduced in this group.
• High Flow Oxygen delivery system provides another weapon in the arsenal of oxygen therapy in improving gas exchange and reducing work of breathing.
• It may reduce the need for more aggressive forms of therapy; reducing the need for intubation and decrease duration of ICU stay.
• Next research is to identify the clinical characteristics of patients who are maintained on HFO and those who require escalation of therapy.

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
<th>Oxygen</th>
<th>NIV</th>
<th>MV</th>
<th>Expired</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFO</td>
<td>120</td>
<td>80</td>
<td>105 (52.5%)</td>
<td>50 (25%)</td>
<td>40 (20%)</td>
</tr>
<tr>
<td>ICU/LOS</td>
<td>7.5 days</td>
<td>11.4 days</td>
<td>18.5 days</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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