Supplementary Online Content


eAppendix. Methods

eTable. Study sites and number of patients enrolled at each site

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eAppendix

Methods

Continuous monitoring, intermittent monitoring, and weaning protocol

Continuous pulse oximetry monitoring group

Patients will be placed on continuous pulse oximetry from admission until discharge. Management of oxygenation status will be as outlined below.

Intermittent pulse oximetry monitoring group

Patients with SpO2 of ≥90% will undergo pulse oximetry monitoring only when vital signs are being evaluated as scheduled or if clinically significant deterioration is suspected by healthcare personnel or upon parental/guardian request. If the patient is found to be <90% on spot check, they will then be monitored continuously for five minutes to determine if hypoxia is transient. This observation period is waived if oxygenation drops below 80%. This SpO2 level is used because 80% is near the inflection point of the oxyhemoglobin dissociation curve and represents a transition to markedly decreased arterial oxygen (PaO2) and markedly increased tissue hypoxia. Persistent hypoxia will result in initiation of supplemental oxygen and initiation of continuous monitoring while on oxygen. Once the patient has been off supplemental oxygen for 1 hour, the continuous oximetry monitoring will be stopped and spot checks resumed for those children randomized to intermittent monitoring.

Weaning of supplemental oxygen

1. Supplemental oxygen will be initiated for an initial goal SpO2 ≥92%. This will be supplied by nasal canula. Pulse oximetry will be monitored continuously in both groups as detailed above. Oxygen rate may be weaned when SpO2 remains >92% for 1 hour.
2. Patients who are less than 10kg body weight will be weaned by 0.25 liters per minute (LPM) every hour if SpO2 is consistently greater than 92%.
3. Patients who are ≥10kg will be weaned 0.5 LPM every hour if SpO2 is consistently >92%.
### eTable. Study sites and number of patients enrolled at each site

<table>
<thead>
<tr>
<th>Study Site</th>
<th>Location</th>
<th>Number of patients enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children's Mercy, Kansas City</td>
<td>Kansas City, MO</td>
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</tr>
<tr>
<td>Hasbro Children's Hospital</td>
<td>Providence, RI</td>
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</tr>
<tr>
<td>Children's Hospital of San Antonio</td>
<td>San Antonio, TX</td>
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</tr>
<tr>
<td>University of Missouri Children's Hospital</td>
<td>Columbia, MO</td>
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</tr>
</tbody>
</table>

*Patients were only enrolled at the community hospital location in Overland Park, KS*