Malignant Hyperthermia: A Multidisciplinary Approach
Pankti Acharya, MPH; Yonatan Bardash, MD; Ashley Brown, MD; Linda Tichenor, RN; Janeli Melendez, RN; Jerome Balbin, MD; Stephen P Winikoff, MD; Padmaja Upadya, MD
St. Joseph’s University Medical Center, Paterson, NJ

Introduction

- Malignant hyperthermia (MH) is a life-threatening disorder of the skeletal muscle cell, which presents as a hypermetabolic reaction to certain anesthetics. Common signs include muscle rigidity, tachycardia, increased CO2 production, and hyperkalemia. An elevated end-tidal CO2 in the setting of adequate minute ventilation is an early indicator of MH.
- Dantrolene, a ryanodine receptor antagonist, should be available when general anesthesia is used.
- This project aimed to address competencies and improve MH care in the operating room through simulation training.

Methods

- Education time was allocated each week to conduct simulations involving a multidisciplinary team of over 100 participants.
- During simulations, we measured time to MH identification, time to dantrolene administration, and time to laboratory test redraw.
- Following the sessions, we debriefed with each team member and identified areas of improvement.

Discussion

- Simulation training is an effective method of preparing for high-risk scenarios. Many studies have noted that post-debriefing is the most important aspect of simulation training.
- Through our simulations, our performance met standards and followed our hospital protocol. We identified gaps in the accessibility of certain equipment and order sets. Additionally, several members of the team were critical of their interdisciplinary communication. By following the Plan-Do-Study-Act cycle, we are able to continuously identify weaknesses and work towards addressing them as a team.

Common Themes From Debriefing Sessions

<table>
<thead>
<tr>
<th>Interdisciplinary communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying a team leader</td>
</tr>
<tr>
<td>Streamlining equipment</td>
</tr>
<tr>
<td>Creating MH order sets</td>
</tr>
</tbody>
</table>

References