Hyperventilation-preventing Valve for Bag-Valve-Mask Resuscitators

Published date: April 10, 2012

Technology description

Market Summary

A total of approximately 117 million patients visit the emergency room in the United States annually, and 1 in 10 needs manual ventilationviaBVM resuscitators. Efficiency and safety of the procedure highly depends on the operator's experience, and yet, according to a recent study, even well-trained physicians deliver 33% more ventilations than the current resuscitation guidelines. In order to eliminate hyperventilation, numerous modifications have been made on currently available BVM resuscitators. These modifications primarily focus on controlling the volume of air delivered to patients, but hyperventilation is more likely caused by excessive respiratory rate. The ventilation rate is critical as studies have shown that normalized ventilation rate leads to a 70% increase of absolute survival. Currently, there is no BVM resuscitator that controls ventilation rate on the market.

Technical Summary

BVM resuscitators are an essential airway management device used in every emergency and operating room worldwide. Usage of BVM resuscitators by medical professionals in stressful situations tends to result in hyperventilation of the patient, which is deleterious and sometimes deadly. Emory researchers have designed a novel valve to mechanically reduce the ventilation rate of BVM resuscitators. With this particular design, a 5-second delay is introduced between re-inflation of the bag contraction, naturally cueing providers to deliver a steady ventilation rate at 10-12 breaths per minute recommended by American Heart Association. This technology addresses the hyperventilation issue of BVM resuscitators while maintaining their compatibility with various airway management add-ons.

Application area

Rate-controlling valve for Bag-Valve-Mask (BVM) resuscitators to prevent hyperventilation during manual resuscitation.

Advantages

The device utilizes a novel valve mechanism to regulate the reinflation rate of BVM resuscitators, and therefore prevents hyperventilation.

The user-friendly device is compatible with current airway management add-ons.

Institution

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