Does Use of a Heat and Moisture Exchanger Affect pMDI Delivery to a Simulated Patient on Mechanical Ventilation

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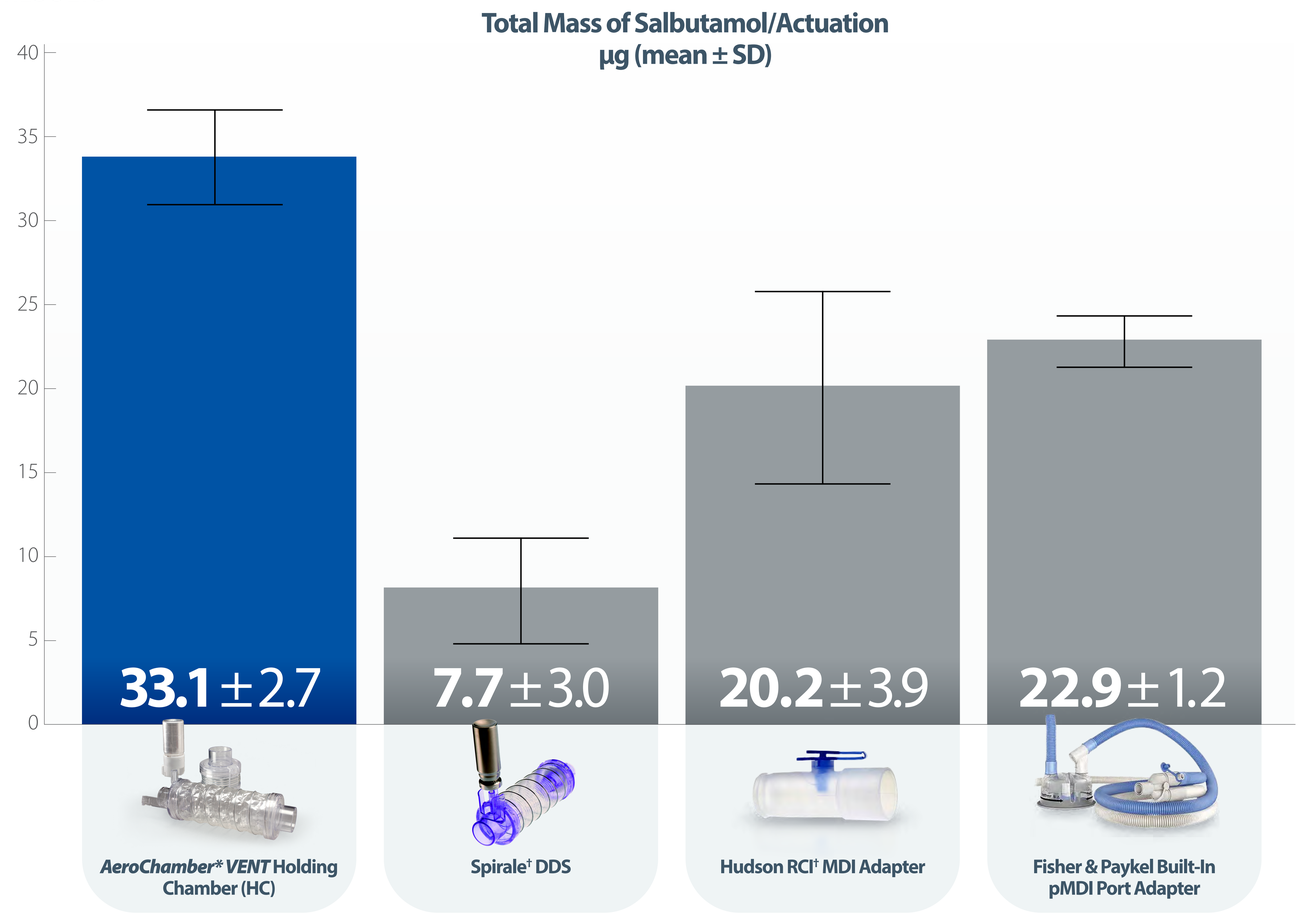
AIMS

Heat and moisture exchangers (HME) have been designed to allow aerosol delivery to mechanically ventilated patients by bypassing the HME during aerosol administration. This study evaluates the effect a bypass-type HME has on aerosol delivery in a simulated adult ventilator setting.

METHODS

A Fisher & Paykel RT210 adult breathing circuit was used to simulate an adult model (500 mL, duty cycle = 33%, 13 bpm) generated using a Dräger V500 ventilator. A Gibeck† Humid-Flo† HME was placed at the entrance to an 8.0 mm diameter endotracheal tube (ETT). An aerosol collection filter was located at the distal end of the ETT and coupled to a SelfTestLung†, simulating the patient. 5 actuations of Ventolin† pMDI were delivered through 3 different delivery devices and a built-in port adapter in the circuit, followed by 6 complete breathing cycles. Salbutamol assay was undertaken by HPLC-UV. Comparisons were made on potential dose to the lungs and were equated to a potential relative carbon footprint based upon published claims[1] for Ventolin†.

RESULTS



CONCLUSION

This study has shown that use of a bypass-type HME can allow delivery of medication to the patient. It also demonstrates that use of ***AeroChamber**** ***VENT*** Holding Chamber spacer (also marketed as ***AeroVent Plus**** Collapsible Holding Chamber) could potentially reduce the carbon footprint by up to 4-fold compared to the alternative options. By maximizing the amount of each puff reaching the lungs the patient is likely to get relief sooner and reduce the number of puffs needed.

Make every puff count

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