

Evaluation of Transport Ventilators Used by a Pediatric Intensive Care Transport Service

Clinical study

AUTHORS

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CENTER AND COUNTRY

Children's Acute Transport Service, UK

TYPE OF STUDY

Independent bench test

STUDY OBJECTIVE

Evaluate Oxylog® 3000 plus and babyPAC™ transport ventilators using pressure control ventilation.

METHODS

The babyPAC™ and Oxylog® 3000 plus transport ventilators were compared to an Evita XL PICU ventilator, using a FlowAnalyser™ PF-300 ventilator calibration machine, at typical ventilation settings used for transfers. Ventilators were assessed for precision and breath-to-breath variation (BTBV).

STUDY RESULTS

Median measured Peak inspiratory pressure (PIP) and positive end-expiratory pressure (PEEP) was within 1.5 mbar of set values for all ventilators. Median measured Ti and rate was within 0.1 s of set Ti and rate for all ventilators. PIP and PEEP showed <5% BTBV in all ventilators. Ti and total breath time showed <5% BTBV

in most breaths. Tidal volume (TV) showed <5% BTBV in most breaths. At low minute volumes and FiO₂, measured FiO₂ on the Oxylog® 3000 plus was 23% higher than set, triggering a ventilator alarm. The babyPAC™ and Evita XL ventilators delivered measured FiO₂ within 5% of set FiO₂.

CONCLUSION

All tested ventilators delivered ventilation with negligible BTBV and with good correlation with input settings, suggesting the cause of altered ventilation requirements seen during transport cannot be explained using an ex-vivo ventilator circuit with a test lung. The Oxylog® 3000 plus delivered higher than expected oxygen concentration at low minute volumes, although alerted the user to this. These findings are being discussed with the ventilator manufacturer.

POSTER PRESENTED AT

AAGBI meeting

YEAR OF PRESENTATION

2018

SMITHS MEDICAL PRODUCTS USED

Pneupac® babyPAC™ ventilator

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