

Evaluation of Transport Ventilators Used by a Paediatric 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 (P_{IP}) and positive end-expiratory pressure (PEEP) was within 1.5 mbar of set values for all ventilators. Median measured T_i and rate was within 0.1 s of set T_i and rate for all ventilators. P_{IP} and PEEP showed <5% BTBV in all ventilators. T_i and total breath time showed <5% BTBV in most breaths. Tidal volume (TV) showed <5% BTBV in most breaths. At low minute volumes and F_{iO_2} , measured F_{iO_2} on the Oxylog® 3000 plus was 23% higher than set, triggering a ventilator alarm. The babyPAC™ and Evita XL

ventilators delivered measured F_{iO_2} within 5% of set F_{iO_2} .

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

For more information visit our website at www.smiths-medical.com

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