COMPARISON OF NORMAL SALINE, HYPERTONIC ALBUMIN AND HYPERTONIC ALBUMIN PLUS TERLIPRESSIN RESUSCITATION IN AN INFANT ANIMAL MODEL OF HEMOPHOREMIC SHOCK

Introduction

Extravascular lung water (EVLW) can be measured at the bedside using the transpulmonary thermodilution method (TPTD), which quantifies the amount of pulmonary edema. This technique has never been validated in conditions of high indexed blood flow such as respiratory changes of aortic blood flow velocity, and in mechanically ventilated children, using the heart lung interactions, introduced using a surfactant wash-out lavage ALI model. Serial EVLW measurements by TPTD and TPDD were performed at various levels of lung water and the final EVLW values were compared with the post mortem gravimetry results. Data were analyzed using correlation statistics (Spearman’s coefficient of rank correlation (r)).

Results

A total of 25 simultaneous TPTD and TPDD measurements from ten lambs were analyzed with a median EVLW_{TPTD} of 24.0 (IQR 20.7) ml/kg. One lamb died before the measurements were performed. Correlation between EVLW_{TPTD} and EVLW_{TPDD} was r=0.94 (figure 1; p<0.0001, 95%CI 0.87–0.97). Median EVLW_{Gravimetry} was 23.9 (IQR 9.4) ml/kg. The correlation between the final EVLW_{TPTD} and the EVLW_{Gravimetry} was r=0.93 (figure 2; p<0.0002, 95%CI 0.71–0.99).

Conclusions

EVLW measurements by TPTD in severe pulmonary edema correlate well with the gold standards.

VALIDATION OF EXTRAVASCULAR LUNGWATER MEASUREMENT BY TRANSPULMONARY THERMODILUTION IN SEVERE PULMONARY EDEMA IN A NEWBORN ANIMAL MODEL

Introduction

Extravascular lung water (EVLW) can be measured at the bedside using the transpulmonary thermodilution method (TPTD), which quantifies the amount of pulmonary edema. This technique has never been validated in conditions of high indexed EVLW levels measured in infants and young children. We compared EVLW_{TPTD} measurements with the transpulmonary double indicator dilution method (TPDD; ice-cold indocyanin green) and post mortem gravimetry.

Methods

In eleven newborn lambs pulmonary edema was induced using a surfactant wash-out lavage ALI model. Serial EVLW measurements by TPTD and TPDD were performed at various levels of lung water and the final EVLW values were compared with the post mortem gravimetry results. Data were analyzed using correlation statistics (Spearman’s coefficient of rank correlation (r)).

Results

A total of 25 simultaneous TPTD and TPDD measurements from ten lambs were analyzed with a median EVLW_{TPTD} of 24.0 (IQR 20.7) ml/kg. One lamb died before the measurements were performed. Correlation between EVLW_{TPTD} and EVLW_{TPDD} was r=0.94 (figure 1; p<0.0001, 95%CI 0.87–0.97). Median EVLW_{Gravimetry} was 23.9 (IQR 9.4) ml/kg. The correlation between the final EVLW_{TPTD} and the EVLW_{Gravimetry} was r=0.93 (figure 2; p<0.0002, 95%CI 0.71–0.99).

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EVLW measurements by TPTD in severe pulmonary edema correlate well with the gold standards.