

Ventilator hyperinflation in paediatric critical care: a survey of current physiotherapy practice in the United Kingdom and Ireland

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Keywords

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Abstract

Introduction

Physiotherapists in paediatric intensive care units (PICUs) use a variety of techniques to remove retained bronchopulmonary secretions and improve work of breathing in children who are mechanically ventilated. Ventilator hyperinflation (VHI) is commonly used in adults to aid secretion removal without disrupting the integrity of the ventilatory circuit. This study aimed to identify current practice of VHI within paediatrics in the United Kingdom (UK) and Ireland.

Methods

A survey was designed and distributed via email to senior physiotherapists in all 22 PICUs across the UK and Ireland. Physiotherapists working in adult critical care were excluded. Responses were analysed via descriptive statistics, with content analysis used for free text open questions.

Results

Twenty-nine surveys were completed, of which 17 individuals (58%) indicated that they used VHI. VHI was used infrequently (commonly less than once per month, N=13 76.5%) and techniques were generally taught at the bedside by senior colleagues. Indications for using VHI rather than manual hyperinflations included concerns over de-recruitment on disconnection from the ventilator (N=11, 64.8%), patients with COVID-19 and those with a high respiratory infection risk (N=8, 47%). Approaches to applying VHI varied, with target peak inspiratory pressures between 28cmH₂O and 42cmH₂O.

Conclusion

The survey responses returned suggest that the use of VHI in PICU is infrequent, with no standard approach to its use. However, response rate is unknown owing to survey distribution method. There appear to be some occasions where respondents would choose VHI over manual hyperinflations and further research is needed to explore these further.