

Dear Editors

In the most recent edition of your journal, Herrada *et al* described a method of treating refractory atelectasis in a retrospective cohort of 15 mechanically ventilated children.¹ The authors reported that a combination of therapeutic techniques, in a standardised order of application, was associated with improvements in atelectasis scores and dynamic compliance compared with baseline measures.

As clinicians and researchers in paediatric and respiratory physiotherapy it is always encouraging to see published evidence of the efficacy of airway clearance techniques in children. Herrada and colleagues have demonstrated the potential efficacy of a combination of airway clearance manoeuvres.

The components of the described manoeuvre can be physiologically defined as follows

1. Selective inflation of the atelectatic lung
2. Manual techniques to increase peak expiratory airflow (PEF) also described as expiratory rib cage compression (ERCC)
3. Saline lavage
4. A re-recruitment technique

These techniques are well described in the literature² and in many cases with a body of research to define how they should be performed to maximise efficacy.^{3,4} The authors should be congratulated on presenting this case series to demonstrate that manual techniques for airway clearance can be an effective method of recruiting atelectatic lung. We would like to suggest that the techniques are commonly used in a number of countries globally (including the UK, Australia and South Africa), and generally fall under the umbrella of chest physiotherapy. The authors reported that their cohort of patients did not respond to standard forms of chest physiotherapy. However, the interventions described within the manoeuvre would be considered standard practice by many physiotherapists. It is unclear from the paper what alternative standard physiotherapy the group received.

The paper is clear that deep sedation and potentially neuromuscular blockade are required to prevent iatrogenic discomfort or anxiety. We would argue that necessary levels of patient comfort can be achieved without neuromuscular blockade and assessed using an appropriate standardised score to ensure patient comfort. The requirement for complete derecruitment beyond lung closing volume is contrary to lung protective and open lung ventilation strategies which are standard practice in most units, and could be considered as potentially increasing the risk of lung injury. We would generally not consider the continuation of PEEP during expiratory flow manoeuvres to be detrimental to their effect, but this is worthy of further investigation.

We would also suggest that lung ultrasound may be a superior method of assessing resolution of atelectasis and effectiveness of recruitment. This would offer similar diagnostic accuracy to chest radiograph with no exposure to ionising radiation, a consideration that should not be dismissed, particularly where serial imaging may be required to monitor lung recruitment over time.⁵

In countries where physiotherapy is an autonomous profession, standard practice would be for a thorough physiotherapy assessment with clinical reasoning to consider how these techniques are

utilised on an individualised and patient specific basis. It could be argued that creating a standardised protocol for airway clearance measures may make future prospective randomised controlled trials more feasible, something which has always been a challenge for our profession.² However, this should not be at the cost of clinical reasoning and individualised management.

We would hope this paper will encourage others to publish their experiences with airway clearance modalities, along with more robust research so that techniques can continue to be refined. We acknowledge the authors' intention to do exactly this and would encourage them to collaborate with physiotherapy colleagues across the globe as they take their work forwards.

References

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