

Pediatric unplanned extubation: Process fail or adverse event?

Valeria C Neves, Camila G Ribas*, Adriana Koliski and José E Carreiro

Complexo Hospital de Clínicas da Universidade Federal do Paraná, Brazil

Abstract

Endotracheal intubation is one of the most common invasive procedures in routine paediatric intensive care. Unplanned extubation occurs when an endotracheal tube is inadvertently removed, leading to a “loss of control” in a highly controlled environment.

Commentary

Unplanned extubation (UPE) is the unintentional removal of a patient's breathing tube, either by self extubation or unplanned removal due to an external force that causes the tube to become dislodged and constitutes an adverse event [1,2].

These events commonly occur in the hospital with financial impacts. The consequences associated with such events are respiratory failure, airway injuries, longer use of mechanical ventilation, increased length of stay in the PICU and longer hospitalization. In addition, there may be an increased risk of hypoxemia, atelectasis and susceptibility to ventilator associated pneumonia [3-6].

The risk factors associated with these adverse events observed were non-compliance with the protocols, as well as lack of innovative and adaptive strategies for quality control. Studies frequently describe weaning off MV as a potential risk factor for UPE because the withdrawal of sedation causes psychomotor agitation [1,2,6]. The lack of well-established weaning protocols in paediatrics prolongs the patient's time on mechanical ventilation favours the high incidence of UPE [2,7].

However, it is observed that, in practice, UPE occur during the first days of mechanical ventilation, when patients are in controlled ventilation mode and receive sedation. This would suggest that UPE probably occurred during team handling, but also that sedation was insufficient, leading to excessive agitation during patient handling [8-13].

The UPE is more common among patients under 12 months of age and one factor associated with UPE in paediatric patients is the size of the child, as infants have a smaller body surface on which the tube can be secured. Furthermore, these patients frequently present with excessive secretions and psychomotor agitation [14,15].

Various studies have reported high reintubation rates. The main causes of reintubation are related to hypoxemia, excessive secretion and hypoventilation [8,9]. Another important impact of unplanned extubation in children is the trauma of reintubation requiring tracheostomies [7-15].

The strategic plan for UPE reduction should start from hospital administrative management by supporting and promoting local

leadership in the intensive care unit with the aim of risk management and the safety of children in the intensive care unit. Interventions based on a multidisciplinary approach must be encouraged to reduce UPE rates. It is crucial to identify patients at potential risk and develop effective low-cost, easily implemented interventions so that the quality of care provided for intubated children can be improved [1,2,7,13-15].

Therefore, to review each incident related to the adverse event, it is necessary to determine the root cause, thus correcting the possible process failures. This action will have an impact on reducing the number of UPE.

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*Correspondence to: Camila G Ribas, Complexo Hospital de Clínicas da Universidade Federal do Paraná, Brazil, E-mail: camilagemin@hotmail.com

Received: September 05, 2019; Accepted: September 23, 2019; Published: September 27, 2019

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