

Surfactant: The importance of documented policy and procedure

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The current issue of the *Canadian Journal of Respiratory Therapy* includes an excellent – and timely – review by Nouraeyan et al (1) (pages 91-95) on surfactant administration in the neonatal population. Care of this fragile group has improved greatly since the early days of neonatology. Huge strides have been made on the obstetrical side, which makes our job in the neonatal intensive care unit (NICU) significantly easier than it once was. Advances in maternal screening for infection, drugs and congenital anomalies, among others, have led to earlier and improved treatment.

In the NICU, our grasp of the importance of nutritional needs in the low birth weight population has improved immensely over the past 10 to 15 years. The leaps in technology have enabled us to fine-tune conventional ventilation and synchronize very closely to the patients' needs in all phases of the ventilatory cycle. The technology and expertise in high-frequency ventilation have also shown exponential growth. However, there is one area that has shown a remarkable lack of consistency in its application. Surfactant plays such a vital role in the reduction of mortality and morbidity, and yet, after 30 years of widespread use, many facilities do not have a documented policy and procedure, let alone one based on current evidence.

We are all aware that one of the main components of increased work of breathing is low functional residual capacity (FRC). Positive pressure ventilation (PPV), in the form of appropriate peak inspiratory pressure and positive end-expiratory pressure, is required to achieve effective FRC. However, one of the first things we are taught as respiratory therapists is that there is no safe level of PPV. If you are administering PPV, in whatever form that may take, you are causing damage to the lungs in varying degrees.

This is where surfactant enters the fray. When given early and effectively, surfactant can help establish FRC while allowing the practitioner to use lower pressures and, therefore, mitigate damage to the premature lung. The question once was: what is the best way to administer surfactant via the endotracheal tube? Well, as this article by the group from the Montreal Children's Hospital (Montreal, Quebec) shows, the question has been answered. Bolus administration, ideally in one aliquot if tolerated, via a multi-access catheter to a patient in supine position with head mid-line, is the way to go. The article explains the rationale for this quite nicely, and most Level III units adhere to this practice. There are outliers, however, and that is why we need a standardized protocol that is easily accessible and teachable. In India, the pharmaceutical company that markets one type of surfactant will not allow practitioners to administer the surfactant until they have read and signed a comprehensive package based on the latest practices and literature available. The Montreal groups' efforts are a significant step in that direction.

In Canada, the Evidence-based Practice for Improving Quality (EPIQ) group has talked about putting their heads together and developing a best practice standard. EPIQ is essentially a representative collection of health care providers from neonatal units across the country striving to raise quality and continuity of care to the highest level by shared practices and use of benchmarking in a highly collaborative manner. Hopefully the article by Nouraeyan et al (1) and the Montreal groups' efforts will help kick start such an endeavour.

REFERENCE

1. Nouraeyan N, Lambrinakos-Raymond A, Leone M, Sant'Anna G. Surfactant administration in neonates: A review of delivery methods. *Can J Respir Ther* 2014;50:91-5.

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