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SWALLOWING IN PATIENTS WITH TRACHEOSTOMIES

A study conducted in the US (n=220 000) showed that 62% of patients requiring mechanical ventilation developed dysphagia post-extubation (Rassameehiran, 2015). This occurs due to sensory loss, motor impairment and damage to anatomical structures including the vocal folds and epiglottis during extubation.

Relevant complications associated with endotracheal intubation and tracheostomy

- Impaired oropharyngeal pressure (restored with speech and swallowing valve)
- Mucosal injury and inflammation (GERD and esophagitis)
- Reduced glottal reflexes
- Poor hyolaryngeal excursion (can be worsened by tethering of HL complex with scar tissue)
- Muscle disuse atrophy
- Odynophagia
- Increased risk of respiratory infections

Aspiration rate is 2,7 times higher when the cuff is inflated (Davis et al., 2002). In fact, all of the above complications are more severe with when the tracheostomy cuff is inflated.

Mechanism of aspiration in tracheostomy

1. Material that reaches the cuff, inflated or deflated, has already past below the vocal folds and has already been aspirated
2. Secretions, food and liquid, and bacteria build up on top of the cuff if it is inflated
3. Tracheal dilation during inspiration means that these pooled materials will eventually enter the lower respiratory tract

The bottom line

- An inflated cuff does not protects the patient's airway against aspiration
- Deflating the cuff will result in improved oropharyngeal swallowing function and should be done during all swallow trials
- Speech and swallowing valves further improve swallow function in tracheostomised patients

All patients who are tracheostomised should be referred to a speech-language pathologist either before surgery or immediately afterwards (Mitchell et al., 2013).

All patients referred should undergo instrumental assessment (FEES or MBS) as silent aspiration is found in up to 77% of patients in this population (Elpern et al., 1994).

Davis, et al. (2002) Swallowing with a Tracheotomy Tube in Place: Does Cuff Inflation Matter? *Journal of Intensive Care Medicine*.17(3): 132-135.

Elpern, E. H., Scott, M. G., Petro, L., & Ries, M. H. (1994). Pulmonary aspiration in mechanically ventilated patients with tracheostomies. *Chest*, 105(2), 563-566.

Mitchell, R. B., Hussey, H. M., Setzen, G., Jacobs, I. N., Nussenbaum, B., Dawson, C., ... & Merati, A. (2013). Clinical consensus statement: tracheostomy care. *Otolaryngology--Head and Neck Surgery*, 148(1), 6-20.

Rassameehiran, S., Klomjit, S., Mankongpaisamrung, C., & Rakvit, A. (2015, January). Postextubation dysphagia. In *Baylor University Medical Center Proceedings*, 28(1), 18-20.