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STATEMENT OF INTEREST

None declared.

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Tracheotomy and ventilator-associated pneumonia: the importance of oral care

To the Editors:

We read with interest the recent study of Nseir *et al.* [1], which demonstrated that tracheotomy was independently associated with a decreased risk of ventilator-associated pneumonia (VAP). The authors offered several potential explanations as to why tracheotomised patients should be at decreased risk of VAP compared to patients with translaryngeal intubation. These included liberation of the vocal cords, resulting in a reduced risk of aspiration of contaminated oropharyngeal secretions into the lung and the reduction in bacterial biofilm formation associated with regular changing of the tracheotomy cannula, and facilitation of weaning, leading to a shorter duration of mechanical ventilation.

An additional explanation that should also be considered is differences in the quality of oral care between tracheotomised patients and those with translaryngeal intubation. There is increasing evidence that dental plaque serves as an important reservoir for respiratory pathogens implicated in VAP [2]. Indeed, some hospitals have instigated formal oral care programmes in order to reduce VAP rates in high-risk patients [3]. However, in patients intubated *via* the translaryngeal route, the endotracheal tube may obscure the view of the oral cavity and impede access for adequate oral care [4]. Moreover, nurses are often reluctant to administer oral care for fear of dislodging the endotracheal tube [4]. Finally, the oral tracheal tube may, by holding the mouth open, predispose to xerostomia, an important contributory factor to poor oral hygiene [5].

Since all of these problems are obviated by tracheotomy, we would postulate that improved oral care also contributed to the reduction in ventilator-associated pneumonia seen in these patients.

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STATEMENT OF INTEREST

None declared.

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From the authors:

We would like to thank P. Frost and M.P. Wise for their comments, and wish to respond to some of the points they raised.

Dental plaque, the oropharyngeal cavity and the stomach are potential reservoirs for microorganisms in critically ill patients. Aspiration of contaminated oropharyngeal and gastric secretions is common in intensive care unit (ICU) patients requiring mechanical ventilation through an endotracheal tube or a tracheotomy cannula [1]. The most important mechanism of ventilator-associated pneumonia (VAP) is gross or micro-aspiration of oropharyngeal microorganisms into the distal bronchi, followed by bacterial proliferation and parenchymal invasion, leading to bronchopneumonia [2]. Aspiration of oropharyngeal contents containing a large bacterial inoculum overwhelms host defences that are already compromised by critical illness and the presence of an endotracheal tube, thus leading to the development of VAP. Understanding this sequence of pathophysiological events, it would seem logical that reducing concentrations of oral microorganisms would have a beneficial effect on prevention of VAP [3].

A recent prospective, observational study compared 1,252 ICU patients who received oral care with 414 historical controls who did not receive oral care [4]. The incidence rate of VAP was significantly lower in the oral care group than in the non-oral care group. The recent study of KOEMAN *et al.* [5] reported the results of a randomised, double-blind, placebo-controlled trial with three arms: chlorhexidine, chlorhexidine/colistin and placebo. Trial medication was applied every 6 h in the buccal cavity of the 385 included patients. The daily risk of VAP was reduced in both treatment groups compared with placebo, to 65% for chlorhexidine and 55% for chlorhexidine and colistin. Another prospective, randomised study evaluated the effect of oropharyngeal decontamination by povidone-iodine on VAP in 98 patients with head trauma [6]. The study found a significant reduction in the rate of VAP in the povidone-iodine group when compared with the saline and control groups. In addition, a recent meta-analysis assessed the efficacy of topical chlorhexidine for prevention of VAP [7]. Seven randomised controlled trials met the inclusion criteria. Topical chlorhexidine resulted in a reduced incidence of VAP and subgroup analysis showed that the benefit of chlorhexidine was most marked in cardiac surgery patients. Another recent meta-analysis evaluated the effect of oral decontamination on the incidence of VAP and mortality in mechanically ventilated adults [8]. Eleven trials totalling 3,242 patients met the inclusion criteria. Oral decontamination using antiseptics was associated with reduced risk of VAP. Neither antiseptic nor antibiotic oral decontamination reduced mortality or duration of mechanical ventilation.

Tracheotomy facilitates oral care compared with oral trans-laryngeal intubation. This may partly explain the lower ventilator-associated pneumonia rate that our study found in tracheotomised patients [9]. However, pathogenesis of ventilator-associated pneumonia is multifactorial and prevention of VAP should be based on measures reducing colonisation, aspiration and antimicrobial resistance. Although several simple interventions are useful for reducing ventilator-associated pneumonia rates, opportunities for decreasing these seem to be greatest when multi-module programmes are applied [10].

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STATEMENT OF INTEREST

None declared.

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Need to prioritise: end-of-life decision-making in India

To the Editors:

I read with interest the recent article “End-of-life decision-making in respiratory intermediate care units: a European survey” by NAVA *et al.* [1], wherein the authors have beautifully covered the epidemiology, practice, behaviours and attitudes towards end-of-life decision-making in respiratory units in Europe. However, there are certain points

regarding end-of-life decision-making in developing countries like India that merit attention.

First, Indian data on withdrawal of or withholding intensive care in terminally ill patients is sparse. Only two studies [2, 3] have been performed in five centres across the country with varied results. A unicentric survey on the practices of end-of-life decision-making in North India [2] noted that 78% of