

LETTER

Toothbrushing for preventing ventilator-associated pneumonia

Sonia O Labeau^{1,2} and Stijn I Blot^{1,2,3,4,*}

See related research by Gu *et al.*, <http://ccforum.com/content/16/5/R190>

Research on the potential contribution of oral care in preventing ventilator-associated pneumonia (VAP) has led to the generally accepted practice of using oral anti-septic agents [1]; however, the value of toothbrushing remains controversial.

Dr Gu and colleagues [2] investigated the effect of oral care with versus without toothbrushing on VAP prevention by meta-analysis, and found toothbrushing not to significantly reduce VAP incidence (risk ratio 0.77, 95% confidence interval 0.50 to 1.21). We feel, however, uncomfortable with the message that ‘... there is currently a lack of evidence to support toothbrushing in patients receiving mechanical ventilation.’ This phrase might instigate healthcare professionals to abstain from brushing patients’ teeth while the primary objective of toothbrushing is to maintain oral health, not to prevent VAP. A potential VAP risk reduction should rather be considered as a favorable side effect.

Also, two studies [3,4] in which VAP diagnosis was exclusively based on a Clinical Pulmonary Infection Score (CPIS) ≥ 6 were included in the meta-analysis. The CPIS is known to have moderate performance as well as considerable interobserver variability, and has been shown not to differentiate adequately between patients with VAP and systemic inflammatory response syndrome [5]. Our concern is well illustrated by Munro *et al.* [4] reporting to have unexpectedly found 115/192 patients with CPIS ≥ 6 at day 1 of data collection. This diagnostic issue may have yielded a vast overestimation of VAP rates and could have been acknowledged. We encourage researchers to use more stringent definitions for VAP diagnosis in future investigations.

Abbreviations

CPIS, clinical pulmonary infection score; VAP, ventilator-associated pneumonia.

Competing interests

SIB gives lectures on oral care for Kimberley-Clark. SOL gave a one-time presentation on oral care for Kimberley-Clark at the 2011 Annual Congress of the European Society for Intensive Care Medicine, Berlin. SOL held a doctorate research mandate from University College Ghent (2006-2012) and SIB holds a research mandate from the special research fund at Ghent University (Belgium).

Author details

¹Faculty of Education, Health and Social Work, University College Ghent, Ghent, Belgium. ²Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium. ³Department of General Internal Medicine and Infectious Diseases, Ghent University Hospital, Ghent, Belgium. ⁴University Hospital Ghent, De Pintelaan 185, 9000 Ghent, Belgium.

Published: 5 March 2013

References

1. Labeau SO, Van de Vyver K, Brusselaers N, Vogelaers D, Blot SI: **Prevention of ventilator-associated pneumonia with oral antiseptics: a systematic review and meta-analysis.** *Lancet Infect Dis* 2011, **11**:845-854.
2. Gu WJ, Gong YZ, Pan L, Ni YX, Liu JC: **Impact of oral care with versus without toothbrushing on the prevention of ventilator-associated pneumonia: a systematic review and meta-analysis of randomized controlled trials.** *Crit Care* 2012, **16**:R190.
3. Yao LY, Chang CK, Maa SH, Wang C, Chen CC: **Brushing teeth with purified water to reduce ventilator-associated pneumonia.** *J Nurs Res* 2011, **19**:289-297.
4. Munro CL, Grap MJ, Jones DJ, McClish DK, Sessler CN: **Chlorhexidine, toothbrushing, and preventing ventilator-associated pneumonia in critically ill adults.** *Am J Crit Care* 2009, **18**:428-437.
5. Rea-Neto A, Youssef NC, Tuhe F, Brunkhorst F, Ranieri VM, Reinhart K, Sakr Y: **Diagnosis of ventilator-associated pneumonia: a systematic review of the literature.** *Crit Care* 2008, **12**:R56.

doi:10.1186/cc12511

Cite this article as: Labeau SO, Blot SI: **Toothbrushing for preventing ventilator-associated pneumonia.** *Critical Care* 2013, **17**:417.

*Correspondence: stijn.blot@ugent.be

⁴University Hospital Ghent, De Pintelaan 185, 9000 Ghent, Belgium
Full list of author information is available at the end of the article