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CORRESPONDENCE

Decontamination regimens: do not forget half of the protocol

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In their large sample size case–control study, Wang et al. analyzed the emergence of multi-drug resistant bacteria (MDRB) associated with selective oral decontamination (SOD) in mechanically ventilated patients [1]. The authors evaluated a typical combination of colistin, aminoglycoside and amphotericin B whose administration was restricted to oropharyngeal cavity. They concluded that SOD was associated with a lower incidence rate of extended-spectrum beta-lactamase-producing *Klebsiella pneumonia* acquisition but a higher rate of vancomycin-resistant *Enterococcus faecium.* Clinically, they noticed less ventilator-associated pneumonia (VAP) and death within the intensive care unit (ICU) but a similar incidence rate of bloodstream infection (BSI) in each group. Their work brings new evidence supporting decontamination regimen implementation in ICU patients. However, because of methodological issues and despite optimistic conclusions, this study did not convince us that SOD on its own is the best available regimen.

A major limitation is methodology. Retrospective observational analysis of two populations with unbalanced baseline characteristics precludes firm conclusions. Herein, MDRB prevalence-rate at baseline differed between ICUs that applied SOD and ICUs that did not, with vancomycin-resistant enterococci (VRE) incidence in SOD patients (3.3 per 1000 patient-days) being twice those of the control group (1.5 per 1000 patient-days). Admission criteria were also inconsistent with more transplanted patients (9%) in the SOD group than in control group (1%). Furthermore, local protocols for infection prevention and treatment were not detailed, making the interpretation of the impact of SOD by itself difficult. The authors aimed to reduce unbalanced baseline characteristics through a propensity score analysis, which is appropriate, however, score calculation relied on few variables that did not include baseline MDRB prevalence-rate nor transplantation status. Finally, the inclusion of the length of stay as a variable for the matching process constituted a major flaw as it was not available at baseline and may have been influenced by decontamination administration [2].

Another issue regarding the results is the absence of statistical difference in mortality despite the author's stated conclusions. Indeed, raw mortality rates were similar (28% vs 30% $p=0.24$, Chi^2 test). Furthermore, incidence density comparison is unusual for death analysis in the critical care setting.

In addition, VAP is a subjectively diagnosed infection whose attributable mortality depends on the method of census [3]. Therefore, the small yet significant decrease in incidence rate does not constitute a strong clinical outcome. Furthermore, even though SOD reduced the chance of VAP, there was no decrease in mechanical ventilation duration.

Finally, there were no environmental samples and the impact of SOD on local epidemiology was not fully assessed.

Whereas SOD alone does not convince us, two other complete decontamination regimens have been more thoroughly investigated with favorable results on either VAP, BSI, MDRB acquisition and to some extent, mortality [2, 4, 5].

Ecological surveillance is essential to monitor decontamination regimens effectiveness, though it should be rigorously analyzed. As it limits decontamination to the oropharyngeal tract only, SOD on its own seems less

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effective compared to other more complete decontamination regimens [2, 5]. Intensive-care physicians should be aware that omitting a component of a decontamination strategy may reduce its effectiveness.

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