Is Selective Decontamination of the Digestive Tract Safe?

TO THE EDITOR—The recent systematic review of 157 studies of pneumonia prevention methods in the intensive care unit (ICU) by Roquilly et al is of great interest [1]. Two of their findings—the importance of systemic antimicrobial therapy in selective decontamination of the digestive tract (SDD) and the apparent benefit among 29 randomized studies of SDD with 6089 patients vs its insignificance in a single, large-cluster randomized study with 4035 patients—are novel [1].

However, are their findings safe? Have the column headings in Figure 3A been transposed? Is a study included in Figure 3B and 3C with a relative risk >2 missing from Figure 3A? They have otherwise classified some studies that others would have classified as SDD [2]. Some of their data are incorrect. For example, the mortality numbers that they used were mortality percentages in the original studies [3]. For 10 studies, the control group patients that they identified as randomized were, in fact, randomly assigned to receive either the systemic antimicrobial component of SDD (duplex studies) or to ICUs that did not use SDD.

Is each of the following without effect in this context: concurrent group study design, duplex design, and the use of placebo to achieve blinding? [4–7]. In this regard, I have replotted the mortality proportions for the control and intervention groups from studies of digestive prophylactic methods using the data and study design properties provided by Roquilly et al [1]. These box plots (Figure 1) demonstrate similar mortality proportions for all categories of control and intervention groups with one exception. For the concurrent control groups from SDD studies with observer blinding achieved through placebo administration, the mortality is approximately 10 percentage points higher.

The apparent effect of SDD on mortality, as for bacteremia [7] and ventilator associated pneumonia (VAP) [5] incidences, requires a cautious interpretation and consideration of direct vs indirect (contextual) mediations. Among 206 such studies, the mean VAP and bacteremia incidences among control groups of concurrent control trials of SDD are unusually high compared with groups within studies of comparable populations either without any study intervention or studies with a nonantibiotic-based method of intervention [5]. For bacteremia incidence, these incidences are more than 2-fold higher [7]. Moreover, the incidences among concurrent control groups of SDD studies are higher than those among studies of SDD for which the control group was either nonconcurrent or concurrent and receiving only the systemic component of SDD. Presumably, topical placebo application and concurrency underlie this contextual risk, whereas systemic antibiotics and nonconcurrency mitigate against this contextual risk [4–7].

I ask Roquilly et al whether their findings may have a different interpretation. Is the insignificant benefit for the SDD study that was cluster randomized attributable to the absence of an SDD contextual effect? In regard to the association between increase in relative risk and higher...
rates of control group mortality (their Figure 3C), which is causal? Is it possible that their observations can be explained by an increased risk of mortality for control group patients concurrently located in the ICU with SDD group patients via a contextual effect? Crucially, is SDD safe?

Supplementary Data

Supplementary materials are available at Clinical Infectious Diseases online (http://cid.oxfordjournals.org). Supplementary materials consist of data provided by the author that are published to benefit the reader. The posted materials are not copyedited. The contents of all supplementary data are the sole responsibility of the authors. Questions or messages regarding errors should be addressed to the author.

Notes

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