Does Stress Ulcer Prophylaxis Explain the Association Between Clostridium difficile–Associated Disease and Mechanical Ventilation?

To the Editor:

In the September 2009 issue of CHEST, Zilberberg and colleagues reported on the association between patients receiving prolonged acute mechanical ventilation (PAMV) and Clostridium difficile–associated disease (CDAD). The reported infection rate (5.3%) in the current study was significantly higher than previously reported by the same authors in the general hospital population (0.112%). The authors point out that the causality of the association between PAMV and CDAD cannot be established based on the results of the current study. Zilberberg and colleagues do, however, discuss several concomitant risk factors for CDAD that are likely in the mechanically ventilated patient, including increased exposure to antibiotics and C difficile spores. Perhaps one overlooked additional risk factor in the study population was exposure to acid-suppressive therapy (ie, proton-pump inhibitors and histamine-receptor blockers) for stress ulcer prophylaxis. These medications have previously been associated with CDAD, and exposure to these agents may be an important potential confounder of the current study. Evidence-based guidelines emphasize that stress ulcer prophylaxis is appropriate in a select group of critical care patients, including those on prolonged mechanical ventilation. It is plausible that the majority of patients included in the current study would have had exposure to acid-suppressive therapy. Murphy and colleagues reported that stress ulcer prophylaxis is often inappropriately continued when patients transfer out of a critical care unit. The results of the current study clearly show increased costs and length of stay with concurrent PAMV and CDAD. The authors of the current study conclude that "aggressive measures aimed at preventing [CDAD] need to be examined ...." Diligent medication reconciliation when transferring patients from the critical care unit to a lower level of care, particularly focusing on acid-suppressive therapy, may be one simple measure clinicians can take to aid in the prevention of CDAD.

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REFERENCES


Response

To the Editor:

We appreciate Dr Porath’s attention to the connection between gastric acid suppressive medications and Clostridium difficile infection (CDI). Indeed, several observational studies have noted an elevated risk conferred by the use of H2 blockers as well as proton pump inhibitors (PPIs) for the development of such infectious complications as CDI and pneumonia. In this context, and as with every intervention undertaken in medicine, the risk-benefit ratio of stress ulcer prophylaxis (SUP) needs to be examined for each critically ill patient individually. In fact, despite the ubiquitous use of this process of care as a quality indicator within the ventilator bundle, a measured approach is recommended by the evidence-based practice guideline developed jointly by the Infectious Diseases Society of America and the American Thoracic Society. SUP decisions should engender two questions: (1) “Does the benefit of SUP outweigh its risk for my patient?” If the answer is “yes,” then (2) “What is the best choice of SUP agent for my patient, given his/her bleeding risk in conjunction with the risk of developing a nosocomial infection?” Although PPIs appear to be more effective than H2 blockers at reducing the incidence of gastrointestinal bleeding, they are also more frequently associated with nosocomial infections. Although in our study we were unable to quantify the impact of either antibiotic or SUP use on the rates of CDI in the population requiring prolonged acute mechanical ventilation, studies suggest that gastric suppressive agents are egregiously overused in US hospitals, and PPIs specifically, although started in the hospital as SUP, are frequently continued after discharge without any clinical indication for their use. Thus, far from being a part of an automatic electronic order set for any mechanically ventilated...