THE EFFECT OF PRIOR ANTIMICROBIAL THERAPY FOR CAI IN BACTERIAL ISOLATES FROM EARLY AND LATE VAP IN A LEVEL 1 TRAUMA ICU

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BACKGROUND

Ventilator-associated pneumonia (VAP) is the commonest nosocomial infection in patients who require mechanical ventilation. Early VAP is associated with community acquired pathogens whereas late VAP involves hospital flora. Based on this premise and microbiological surveillance and antimicrobial stewardship within a specific ICU, a protocol may be formulated to ensure appropriate empiric antimicrobial choice. The bacterial flora in VAP may be affected however, by antimicrobials prescribed for community acquired sepsis which necessitated admission to ICU.

The aim of this study was to determine the effect of prior antimicrobial therapy for community acquired infections on bacterial isolates from the first episode of early or late VAP in a trauma intensive care unit.

METHODS

Endotracheal aspirates (ETAs) were obtained from patients with suspected early and late VAP. All ETAs were processed as per CLSI. Patients were divided into two cohorts, those whose injuries had required antimicrobial therapy for community acquired sepsis and those who were antimicrobial naïve. The effect of prior antimicrobial therapy on bacterial isolates from the first episode of suspected VAP was compared between the two groups.

RESULTS

Of 288 patients admitted between January – December 2014, pneumonia was suspected in 91 (31.6%). Of these, 69 (76%) patients were antimicrobial naïve and 22 (24%) had received prior antimicrobial therapy (Table 1). Early VAP occurred in 31 (45%) patients in the naïve cohort compared to 3 (12.5%) with prior antimicrobial exposure (p=0.01). Of the early VAP isolates 25 (81%) in the naïve cohort contained community flora whereas all isolates in those with prior antimicrobial therapy revealed hospital acquired organisms (p=0.01). In the antimicrobial naïve cohort with late VAP 27 (71%) patients had community acquired organisms whereas only 3 (16%) isolates in late VAP in those with prior therapy revealed community acquired flora (p<0.001).

CONCLUSION

Patients who receive prior antimicrobial therapy have a significantly lower incidence of early VAP but are more inclined to develop both early and late VAP with hospital acquired pathogens. The knowledge of prior antimicrobial exposure in a patient with early or late VAP will assist in determining the correct empiric antimicrobial choice with regard to targeting hospital or community acquired pathogens.

Number of patients with early and late VAP and community versus hospital acquired pathogens in antimicrobial naïve patients and those receiving prior therapy.

No Antibiotics	Early VAP	Late VAP
Community flora	25	27
Hospital flora	6	11

Antibiotics		
Community flora	0	3
Hospital flora	3	16

Table 1

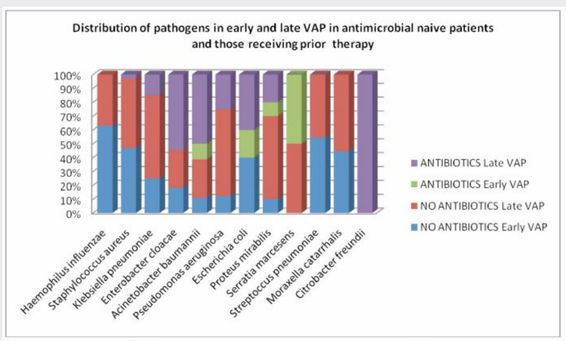

Figure 1

INSPIRING GREATNESS