

## A Prospective Study of Incidence of Prior Gram-Negative Bacteremia as An Independent Risk Factor for Development of Ventilator Associated Pneumonia in Intensive Care Unit Patients



### Medical Science

KEYWORDS :

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#### INTRODUCTION:

Ventilator-associated pneumonia (VAP) is the most common nosocomial infection among intensive care unit (ICU) patients. Incrimination of certain bacteria is necessary for establishing empirical antibiotic therapy.

**AIMS:** To study the incidence of VAP in SRN Hospital AICU, VAP by Gram Positive and Gram Negative microbes and to evaluate association of prior gram negative bacteremia and VAP.

**METHODS:** all patients admitted in ICU during last 1 year needing mechanical ventilation > 48 hrs and not having pneumonia and not receiving prior antibiotics were taken into study, APACHE II was recorded on day 1, and followed for development of VAP, when their clinical pulmonary infection score became > 6. Serial blood and ET tube culture sensitivity was done. Incidence of VAP in AICU SRN Hospital was calculated. VAP group was compared with NON VAP group for morbidity, mortality, no. of mechanically ventilated days and hospital stay. Association of prior gram negative bacteremia and development of VAP was evaluated using ODDs Ratio, student t test and chi-square test.

**RESULTS DISCUSSION:** Incidence of VAP is 36.3 %. APACHE II score, Duration of Hospital stay and Mechanical Ventilation are significantly more ( $P < 0.001$ ) in VAP group having prior gram negative bacteremia on admission in our AICU than in patients without prior gram negative bacteremia. APACHE II of  $24.86 \pm 3.24$  in VAP group was significantly more as compared to NON VAP group  $14.49 \pm 3.42$  ( $P < 0.001$ ). Duration of Hospital Stay is significantly more in VAP group  $19.59$  days  $\pm 5.05$  days as compared to NON VAP group of  $8.12 \pm 1.9$  days. Similar is the case with Duration of Mechanical Ventilation  $18.1 \pm 5.21$  days for VAP group but only  $5.20 \pm 2.32$  days for non VAP group.

Prior Gram negative Bacteremia	VAP present	Non VAP	Total
Present	8 100.0%	0 0.0%	8 100.0%
Absent	21 29.2%	51 70.8%	72 100.0%
Total	29 36.3%	51 63.8%	80 100.0%

$P < 0.001$ , Significantly more VAP seen in patients with prior gram negative bacteremia. [chi square test]

Odds Ratio=40.7, 95 % Confidence interval= 2.2-73.4 Thus high risk of VAP if prior gram negative bacteremia present.

**CONCLUSION:** There was significantly higher morbidity and mortality in VAP group patients. The VAP group also showed a significant high APACHE II Score. The propensity of VAP to occur in those prior infected with Gram negative bacteria was significantly higher and prior gram negative bacteremia in Patients who were admitted for mechanical ventilation showed significant association with development of VAP. Therefore we conclude that there is higher incidence of VAP in patients who are prior infected with gram negative bacteria.