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A Study on Ventilator-associated Pneumonia among Critically Ill Adult Patients Admitted to Intensive Care Units of Tertiary Care Hospitals in the Kandy District, Sri Lanka

GDAM Wimalarathna[1#], S Samarasinghe[2], and BMC Rathnayake[1]

[1]Department of Nursing, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka

[2]Department of Anesthesiology and Critical care, Faculty of Medicine, University of Peradeniya, Sri Lanka

[#]anushamadushaniwimalarathna@gmail.com

Critically ill patients on mechanical ventilation are at the potential risk of Ventilator-Associated Pneumonia (VAP). However, there is limited evidence and standard protocol in the Sri Lankan context. A descriptive cross-sectional study was conducted among 133 adult intubated patients who were admitted to the Intensive Care Units (ICU) of the Teaching Hospital Peradeniya, the Dental Hospital Peradeniya, and the National Hospital Kandy during October and November, 2023. The objectives were to assess the incidence of VAP and associated factors for VAP. Sample size was calculated using Yamane's formula and selected using stratified sampling and simple random sampling methods. Data was collected using a pre-tested structured data collection sheet and online questionnaire for nurses, and analyzed using SPSS version 26. The incidence of VAP was approximately 8 cases per 100 intubated patients in selected three tertiary care level hospitals for a one-month period. Among VAP cases, 72.73% (n= 8) exhibited Gram-negative bacteria, 18.18% (n= 2) Gram-positive, and 9.09% (n =1) mixed presence of both types. The most prevalent microorganism was *Acinetobacter* 36.36% (n =4), followed by *Pseudomonas* 27.27% (n =3), Gram-positive *Cocci* 18.18% (n =2), *Coliform* 9.09% (n =1), and a combination of *Pseudomonas* and *Bacilli* 9.09% (n =1). There was a significant association between the VAP and number of endotracheal tube suction passes ($p = 0.006$), length of ICU stays ($p < 0.001$), length of endotracheal intubation ($p < 0.001$), and duration of mechanical ventilation ($p < 0.001$). Promoting awareness of preventing VAP and the use of proper techniques for endotracheal tube care among nursing staff is recommended to reduce the incidence of VAP, thus reducing the length of the ICU stay and healthcare costs.

Keywords: *ventilator-associated pneumonia , intensive care unit , critically ill patients*