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Research Article

**INCIDENCE OF DEIFFERENT TYPES OF PNEUMONIAS IN
CHILDREN WHO ARE ON VENTILATION IN THE
PEADITRIC INTENSIVE CARE UNIT IN NISHTER HOSPITAL,
MULTAN**Dr. Tenveer Ahmed¹, Dr. Muhammad Nabeel Akbar Chaudary², Dr. Sandal Shahzadi³¹MO, Allama Iqbal Memorial Hospital, Sialkot.²MO, DHQ Khushab.³WMO, BHU Purana Bhalwal.**Abstract:**

Ventilation-associated pneumonia (VAP) is one of the major causes of failure to cut the weaning due to mechanical ventilation. According to culture and sensitivity pattern, appropriate treatment of VAP leads to premature extubation and superimposition from mechanical ventilation

Objective: To know the incidence of Ventilation-associated pneumonia in Paediatric Intensive Care Unit (PICU) at the Children's Hospital, Multan

Study Design: It is a Descriptive Study

Subjects and Methods: A total of 80 children from one year up to 17 months were examined by ventilation within a year. Radiographies were performed in all patients and blood tests were performed including complete blood count (total leukocyte count, differential leukocyte count) and blood cultures with clinical evaluation of the patients.

Conclusion: 30 of the 80 patients who had ventilated had VAP and Pseudomonas was the most common organism in blood culture. The duration of ventilation did not contribute to the development of VAP.

Key Words: *Pseudomonas, Pneumonia, Ventilator*

Corresponding author:**Dr. Tenveer Ahmed,**

MO,

Allama Iqbal Memorial Hospital,

Sialkot.

QR code



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INTRODUCTION:

Ventilator-associated pneumonia (VIP), an endotracheal tube, or a tracheostomy tube for at least 48 hours, requiring mechanical ventilation. Vip responsible different microorganisms are distinguished from other types of pneumatosis by more effective measures of the final prognosis, methods of diagnosis of the necessary antibiotics. The most important indication of VAP is fever, low-grade pain. Temperature, purulent sputum and hypoxia. VAP should be suspected in any ventilation patient with high white blood cell counts and new shadows in chest radiography. Blood culture can bring out organisms that cause VAP. There are two strategies to identify VAP. First, collect new specimens for the culture of the breathing of ventilated patients with ventilatory symptoms with increased infiltration of the bronchoalveolar lavage with new infiltrates or other suspect patients with more invasive methods and bronchoscopy than the recommended bronchoscopy.

In both cases, VAP is not approved when cultures are negative and some other underlying cause of symptoms. *Pseudomonas aeruginosa* is the most common gram-negative bacterium that causes VAP. *Pseudomonas* has natural resistance to many antibiotics. *Klebsiella*, *Serratia*, *Enterobacter* and *Citrobacter* are other bacteria that are resistant to routine antibiotics. *Acinetobacter* is increasingly common and may be resistant to carbapenems such as imipenem and meropenem. Methicillin-resistant *Staphylococcus aureus* is an increasing cause of VAP. Fifty percent of *Staphylococcus aureus* isolates in intensive care unit were methicillin resistant. VAP, which develops within three days after ventilation, is regarded as early initiation when VAP is taken as late-onset VAP within three days after the onset of ventilation.

MATERIAL AND METHODS:

In Children's Hospital, Multan a tertiary hospital between October 2013 and October 2014, it is a

cross-sectional study based on a hospital-based pediatric intensive care unit (PICU) in Multan for one year. It has almost similar ventilation protocols and working populations. We included mechanically ventilated children aged one month to 17 years. Children with mechanical ventilation and existing pneumonia were excluded from the study. Statistical analysis: All the proforma entering data were compiled and tabulated in SPSS. The frequencies are calculated and displayed on the charts and tables at the indicated locations. Chi-square test was applied to qualitative variables and p value <0.05 was considered significant.

RESULTS:

The age range of case studies varies from 1 month to 17 years. Mean (\pm SD) and median age were 5.47 (\pm 5.90) years and 2.94, respectively. 64 of the cases were male, 36 were female, and the female ratio was 1.7: 1. Seventy-four of 100 cases of study were taken to mechanical ventilation due to increasing respiratory insufficiency. The remaining patients had apnea in 6% and neuromuscular block in 20%. Ventilated cases for respiratory causes were significantly higher than those of other mechanical ventilation indications (P <0.05). Fourteen (48%) pneumonia patients were ventilated for 5 to 10 days, 12 (44%) patients were ventilated for 11 to 15 days and 6 (8%) patients for 15 days. Mechanical ventilation was not associated with an increase in VAP frequency for longer periods, and it was understood from this analysis that children aerated shorter than 10 days compared to those who were aerated over 10 days. These results were statistically insignificant (p <0.05). Twelve cases (37.5%) were fever and 20 cases (62.5%) were breathless. Of the 32 patients with VAP, 13 (81%) had high WBC counts (p value <0.05). Blood cultures were positive in 26 patients with VAP. *Pseudomonas* was the main causative organism isolated in 12 patients (37%). Other common organisms producing uremia in blood cultures were *E. coli* and *Klebsiella* (24%) each with a (0.05) p value of <0.05.

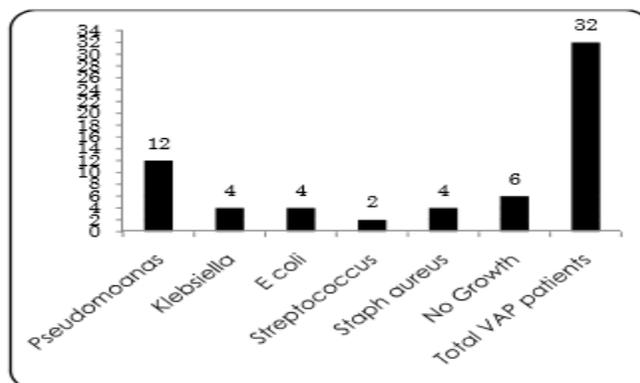


Fig-1: Frequency of organisms in Blood Culture (n=32)

Radiological evidence was found in all cases with VAP and it emerged as an important diagnostic tool in VAP diagnosis. Twenty-two patients (69%) had evidence of reticulonodular infiltrates and 10 patients (31%) had evidence of consolidation on X-rays.

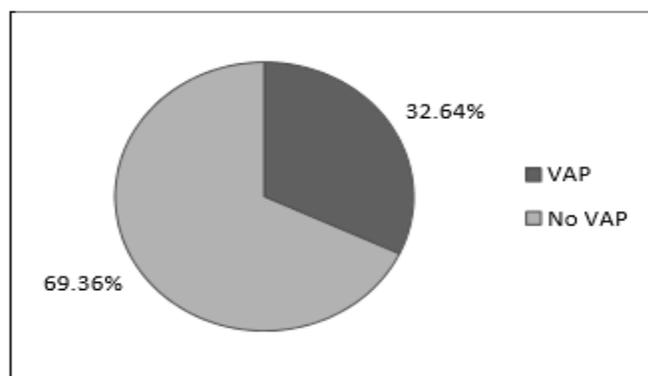


Fig-2. Outcome of mechanical ventilation (n =100)

Of the 80 patients, 32 developed VAP (Figure 2). Twenty-four patients (75%) with VAP were treated successfully with intravenous antibiotic and supportive therapy and discharged, 6 patients (19%) were full and two patients received medical advice. The cause of death in these patients was resistance to pneumonia.

DISCUSSION:

VAP is the most common hospital-acquired infection among patients in the pediatric intensive care unit. Eighty patients were studied prospectively in our study. This issue has not been extensively researched in this part of the country. Zygun *et al.* The study, conducted by two-year studies, covered 60 adult patients⁶. Shaukat *et al.* Described a series of cases of 464 patients over a period of 6 years. Mean and median ages in our study were 4.53 ± 3.60 years and 3.68 years, respectively. Foglia *et al.* Reported that the mean age was 5.47 ± 5.90 years and median age was 2.94 years. The male-to-female ratio in our study was 1.7: 1. Shaukat *et al.* They found this comparable 2: 1.5 ratio. The duration of mechanical ventilation in this study was 14.4 ± 12.8 days. Curtains Saenz and colleagues described a comparable period of 13.64 days⁸. Kendirli *et al.* The ventilation period was 18.8

± 14.1 days. In our study, the main symptom of ventilation was respiratory failure in 74% of cases. Kendirli *et al.* In 64.8% of cases, they found respiratory insufficiency as a sign of ventilation, which is comparable to our study.

As described in Diouf *et al.*'s work, radiologic evidence of lung radiography was found in all patients. Negative Gram organisms have been discovered to be the most common infectious organisms causing VAP, *Pseudomonas aeruginosa* to be followed by *Klebsiella* and *E. Coli* as parent organisms. This was done by Chenoweth *et al.* It can be compared with the work done by. In contrast, Grisaru-Soen G *et al.* They found that the most common pathogens were VAP with coagulase-negative staphylococci, followed by *Klebsiella*. In this study, 32% of patients developed VAP. Yaun *et al.* They found it to be 20.1%. In another study by

Zygun et al. This rate was defined as 45%. In organism, there were no differences that caused pneumonia associated with early and late onset ventilation; this is described by Cortinas Saenz et al. *Staphylococcus Aureus* and *Pseudomonas Aureginosa* as microorganisms causing onset VAP in multiple trauma patients and *Pseudomonas aureginosa* for initial VAP in postoperative patients. The mortality rate in our study was approximately 19%. Mehta et al. Described 40% of the studies they performed, but this study was performed in the adult population under mechanical ventilation due to traumatic brain injury. In a study by Yaun and colleagues, we found that this was 13.5%. The basic idea of the study was to define the VAP frequency and pattern in the PICUs of two tertiary care hospitals with similar ventilation and cut-off protocols to provide the necessary strategy to prevent the onset of pneumonia during ventilation. . The study was conducted in a limited number of patients. To see the true image, a multi-centered study at the national level is needed in different hospitals in Pakistan.

CONCLUSION:

We concluded that VAP was uncommon in children admitted to intensive care, which caused significant mortality and morbidity in ventilated patients and discontinuation of the ventilator. We found that both duration and ventilation mode were not associated with an increase in VAP frequency. Early diagnosis of ventilation-associated pneumonia is necessary to prevent complications.

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