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Research Paper

Hospital-acquired pneumonia refers to any type of pneumonia that is contracted by patients in a hospital environment within at least 48-72 hours of their admission. It is also commonly referred to as nosocomial pneumonia, and it mainly results from bacterial infections rather than a virus. It has the capacity of increasing the stay of patients in a hospital for up to two weeks and is one of the most significant causes of death in intensive care units. The two most significant examples of HAP include bacterial pneumonia and viral pneumonia. Many researchers have conducted studies relating to different aspects of this condition. The most four articles that will be summarized include *Risk Factors for Nosocomial Pneumonia in Intensive Care Units of a University Hospital*, *Hospital-Acquired Pneumonia in Non-Intensive Care Unit Wards*, *Hospital-Acquired Pneumonia: Pathophysiology, Diagnosis, and Treatment*, and *Defining, Treating and Preventing Hospital Acquired Pneumonia*.

This paper summarizes the above four research articles about hospital-acquired pneumonia.

Summary of Risk Factors for Nosocomial Pneumonia in Intensive Care Units of a University Hospital

This research article is based on the objective of evaluating risk factors among patients with nosocomial pneumonia in intensive care unit. Akkoyunlu et al. (2013) affirms that the frequency of nosocomial pneumonia varies depending on the nature of the hospital, the nature of intensive care unit, and patient population. The article holds the position that hospital-acquired pneumonia is usually brought about by the length of a patient's stay in hospital and has a massive impact on morbidity and mortality rates.

The method of studying hospital-acquired pneumonia focused on the observation of patients in a 350-bed capacity referral and tertiary care hospital. Accordingly, the study was mainly concentrated in the intensive care unit where patients were evaluated after 48 hours. Some for found to have contracted hospital-acquired pneumonia while others remained free from bacterial infection. The process of collecting data entailed the evaluation of patients, physical examination findings, the length of stay at the hospital, initial antimicrobial infections, and underlying diseases.

The results of the study indicated that hospital-acquired pneumonia developed among 78 out of 304 patients. This mainly occurred among older patients hence indicating their vulnerability in terms of exposure to this form of pneumonia. According to Akkoyunlu et al. (2013), the crude mortality rate was estimated to be at 62.8% for patients hence indicating the capacity of the condition in terms of leading to death. Additionally, results from the univariate analysis indicated that some of the key risk factors associated with HAP include age, length of stay in intensive care unit, the presence of heart failure, hemodialysis, initial hospitalization, sedative therapy, and blood transfusion. Overall, the article brings out the view that older people tend to be more exposed to hospital-acquired pneumonia than younger individuals are. This is

caused by their lengthy stay in intensive care units and continuous interactions with other patients in the hospital environment.

Summary of Hospital-Acquired Pneumonia in Non-Intensive Care Unit Wards

This article is guided by diverse aims including the determination of incidence, risk factors, antibiotic susceptibility, and the etiology of hospital-acquired pneumonia in non-intensive care unit wards. Avci et al. (2010) reveals that hospital-acquired pneumonia is the kinds of pneumonia that is contracted within a patient's 48-hour stay in a hospital.

The research in this article took place in a 732-bed hospital focusing on medical and surgical wards. Nurses facilitated the research by visiting patients regularly and assessing hospital-acquired pneumonia by investigating nursing and medical records, temperature charts, microbiology reports, and antibiotic treatment charts found in each of these wards. Patients with bacterial infections were easily identified and isolated to facilitate the achievement of research objectives.

Results from the study indicated that patients with hospital-acquired pneumonia had a higher chance of having cardiovascular and central nervous diseases, neutropenia, previous admissions in intensive care units, and immunosuppressing. Again, the results indicated that there were higher deaths from HAP hence indicating its fatal nature. Avci et al. (2010) concludes that the hospital-acquired pneumonia is always likely to occur among patients in the intensive care unit. However, patients in medical and surgical wards experienced comorbidity, had engaged in the usage of antibiotics, and had been hospitalized for longer periods. This also reiterates the view that the condition is more common among older individuals.

Summary of Hospital-Acquired Pneumonia: Pathophysiology, Diagnosis, and Treatment

The article brings out the view that hospital-acquired pneumonia occurs within 48 hours of patient admission without any form of antecedent signs at the time of admission. In line with incidence, Kieninger and Lipsett (2010) opines that HPA is one of the most common infections within a hospital environment at a rate of 15%.

More so, the article points out that the causative organisms for hospital-acquired pneumonia differ significantly from the cause of community-acquired pneumonia. The clinical environment has a significant effect on the manner in which HAP is contracted among different patients. It is mainly caused by gram-positive cocci such as *S pneumoniae* and *S aureus*. Its onset is also usually associated with *Haemophilus influenza*.

Some of the prevention strategies suggested by the article include the modification of patient risk, the minimization of aspiration risk, decontamination of the digestive tract, facilitation of pulmonary hygiene, ventilator weaning. These approaches will help alleviate instances of infection. Kieninger and Lipsett (2010) affirm the view that the method of diagnosing hospital-acquired pneumonia is still debatable, as medical experts are yet to settle on a conventional method. Nevertheless, Centers for Disease Control and Prevention have proposed the use of radiology in the diagnosis because of its effectiveness. Patients must be treated urgently in line with therapy applications to reduce mortality rates.

Summary of Defining, Treating and Preventing Hospital Acquired Pneumonia

The article begins with the emphasis that there are still many controversies relating to the management of hospital-acquired pneumonia. Hospital-acquired pneumonia among patients in ICU emanates from microorganisms that come from nasal, pharyngeal, or gastric flora especially in instances where patients have abnormal upper airway functions.

According to the article, gram-negative pathogens are the key causes of hospital-acquired pneumonia among individuals especially those living in weaker conditions in the ICU. Torres, Ewig, Lode and Carlet (2009) identifies three significant gram-negative pathogens including *Pseudomonas, aeruginosa, and A. baumannii*. In tandem with the article, the emergence of powerful X-ray infiltrates play a vital role in the diagnosis of HAP among patients. Effective diagnosis should be done with the most appropriate time to avoid the prevalence of the disease.

The initial treatment process of hospital-acquired pneumonia has to begin with empirical therapy for effectiveness. The presence of risk factors need to be considered. Therefore, initial antimicrobial treatment is based on risk factors, the spontaneity of the condition, and the timeline for the development of the disease. The study points out that aminoglycosides could also be effective in the treatment process. Overall, a combination of treatments and avoiding instances of overtreatment can help in the control of hospital-acquired pneumonia.

Conclusion

In conclusion, hospital-acquired pneumonia is common among patients in the intensive care unit and is fatal as seen from the high death rates. Researchers continue to conduct studies to reveal more details about the diagnosis of the disease and effective treatment. All the above research articles reveal the fact that hospital-acquired pneumonia is prevalent among older people compared to the younger population.

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