Influence of pneumonia and cancer on reducing childhood mortality.

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Abstract

Cancer patients who contract bacterial pneumonia suffer from severe morbidity. Despite the fact that patients with treatment-induced cytopenias are frequently at the highest risk, there are many factors that can cause life-threatening pneumonias in cancer patients, from abnormalities in swallowing function and lung architecture to complex immune defects brought on by cytotoxic therapies and graft-versus-host disease. The diagnosis of pneumonia in cancer patients is frequently difficult due to these structural and immunologic abnormalities, which also have an effect on the kind and length of therapy. The host factors that affect pneumonia susceptibility are discussed in this publication, along with a summary of diagnostic advice and a discussion of the most recent recommendations for treating bacterial pneumonia in cancer patients.

Keywords: Bacterial Pneumonia, Cancer, Neutropenia, Hematologic Malignancy, Stem Cell Transplant.

Introduction

A severe respiratory infection that damages the lungs is known as pneumonia. When a healthy person breathes, little sacs in their lungs called alveoli fill with air. The alveoli are stuffed with pus and fluid when someone has pneumonia, which makes breathing difficult and reduces oxygen intake. The leading infectious cause of death in children worldwide is pneumonia. Pneumonia claimed the lives of 740 180 children under the age of five in 2019, accounting for 14% of all paediatric fatalities but 22% of all deaths among children from one to five years old. Children and families worldwide are affected by pneumonia, although southern Asia and sub-Saharan Africa have the greatest death rates. Pneumonia can be prevented in children [1].

Unacceptably high mortality rates are brought on by lower respiratory tract infections in cancer patients. Both directly by impairing gas exchange and progressing to system infection/sepsis and indirectly by preventing the delivery of essential antineoplastic medicines, pneumonias cause death in this population. The development of multidrug-resistant organisms linked to repeated exposures to hospital environments, host immune system deficiencies brought on by malignancy and therapy, and increased mortality risks may not only increase the challenges involved with identifying pneumonia in cancer patients. The typical clinical signs of pneumonia, such as purulent respiratory secretions and early radiographic abnormalities, may not be present or be obscured as a result of aberrant inflammatory responses [2].

Bacteria can enter the peripheral lung in both healthy and immunocompromised patients by inhalation, aspiration, hematogenous dissemination, or locoregional progression of proximal airway infections. Prior to reaching the alveolar level, the vast majority of inhaled or aspirated pathogens will be evacuated via mucociliary escalator function, with particles and bacteria being affected in the viscoelastic fluid of the airway lining. Bacteria must get through the barriers that keep infections out of the lower respiratory tract in order to reach the peripheral lung.

Aggressive supportive care is used in the treatment of individuals with substantial lung damage brought on by aspiration of stomach contents. The cornerstones of therapy are positive pressure ventilation, pulmonary toilet, and upper airway suctioning. Though the practise of providing moderate- to high-dose prednisolone is prevalent, there isn't a clearly defined purpose for corticosteroids in this situation. For patients with pneumonia brought on by aspiration of oropharyngeal contents, early and aggressive antibiotic therapy is advised. However, in general, antimicrobial choices should be broad in spectrum and target Gram-negative organisms with or without anaerobic coverage, depending on the patient's immunological condition and the environment of the aspiration (community vs. nosocomial). For patients who have necrotizing pneumonia, putrid sputum, or periodontal disease, anaerobic coverage should be taken into consideration [3-5].

Conclusion

Bacterial pneumonias continue to be a common and difficult complication in cancer patients. Targeted molecular diagnostics and conventional microbiologic methods must be integrated into the clinical strategy. Early detection, taking into account a variety of host variables that are connected to cancer, and quick application of broad-spectrum antibacterial

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medicines are all essential components of effective therapeutic regimens. Clinical studies for more recent host-directed treatments that support or strengthen the immune system are currently being conducted. In the future, these might support more conventional methods.

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