

REVIEW

Cardiovascular Complications of Community-Acquired Pneumonia

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Abstract. Pneumonia is a highly encountered acute respiratory infection that can be caused by different pathogenic agents, including mostly viruses but also bacteria, fungi, and parasites. Cardiovascular complications frequently occur in CAP patients during hospitalization, with an absolute rate of cardiovascular events ranging from 10% to 30%. The cardiovascular system can be affected by multiple mechanisms induced by such an acute infection as CAP, which can cause cardiovascular complications such as heart failure, cardiac arrhythmias, acute coronary syndromes, and venous thromboembolism. These complications can be prevented by evaluating the pathophysiology of cardiac events in these patients based on atheroma plaque-related events, such as acute myocardial infarction, or events unrelated to plaque, such as arrhythmias and heart failure. Cardiovascular problems can impact patients' quality of life for a long period of time, up to one year of hospital discharge, and they are highly associated with adverse clinical outcomes and increased associated medical costs.

Keywords: pneumonia, cardiovascular complications, arrhythmia, pathogenesis, Streptococcus pneumoniae

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1. Introduction

Pneumonia, one of the most frequently encountered infections, is defined as "new lung infiltrates plus clinical evidence that the infiltrate is of an infectious origin, which includes the new onset of fever, purulent sputum, leukocytosis, and a decline in oxygenation" [1].

Community-acquired pneumonia (CAP) represents one of the leading causes of morbidity and mortality worldwide, gradually becoming one of the most common and deadly respiratory infections throughout Western countries, affecting all categories of patients, including both immunosuppressed and healthy patients [2,3].

CAP is the second most common cause of hospitalization and the most common

infectious cause of death, and almost 9% of patients hospitalized with CAP will be rehospitalized due to a new episode of CAP during the same year [4]. Due to its extensive spectrum of associated clinical features, ranging from fever and productive cough to respiratory distress and sepsis, CAP represents an important differential diagnosis among all respiratory illnesses [3,4].

One of the most important **risk factors** that must be taken into consideration in the case of CAP are:

- **Age:** The incidence of CAP requiring hospitalization rises with age, and approximately 1 in 3 patients hospitalized with CAP doesn't survive within one year [5, 6]. The annual incidence of hospitalization for CAP among adults