PERSPECTIVE

Does pneumonia caused by healthcare workers actually exist?

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ABSTRACT

The most recent ATS guidelines for nosocomial pneumonia from 2005 identify a new clinical category of patients called Health Care-Associated Pneumonia that covers a number of extremely diverse illnesses that may be linked to a high risk of multi-drug resistant (MDR) infections and of mortality. These researches attempts to analyses the existing HCAP literature and examine the contentious HCAP aetiology and results, highlighting the necessity for a significant modification of the HCAP concept in light of the underprivileged and conflicting scientific evidence underpinning its foundation.

Key Words: Pneumonia, COVID-19, ambulatory patients, pathogens, nurse.

INTRODUCTION

Community-Acquired Pneumonia (CAP), Hospital-Acquired Pneumonia (HAP), ventilator-associated pneumonia and health care associated pneumonia are all included in the most recent American classification of pneumonia from 2005. HCAP Patients with one or more of the following conditions are specifically included in the definition of HCAP: living in Nursing Homes (NH) or long-term care facilities, receiving chronic dialysis; receiving home infusion therapy; having previously been hospitalized within the previous three months; receiving wound care; or having a family member with a multi-drug resistant pathogen. This new clinical entity represents fundamental demographic life expectancy and socio-cultural changes in the general population, as well as significant advancements in the organization and settings of the health care system.

In fact, over the past few decades, there has been an increase in the number of ambulatory patients people living in long-term care facilities, and people receiving wound care or infusion therapy at home due to the general need to lessen the workload in acute-care hospitals and improve quality of care by stratifying levels and sites of care. All of these elements have helped define a new and growing class of patients who contract illnesses outside of hospitals but who are frequently in contact with the healthcare system.

The prior study by Friedman et al., which demonstrated that bacteremia related to healthcare was similar to hospital-acquired infections in terms of frequency of different comorbid conditions, source of infection, pathogens and their susceptibility patterns, mortality rate at follow-up, and requirement of a targeted therapeutic approach, is thought to be the origin of the HCAP definition. In order to distinguish between community-acquired, nosocomial, and health care-associated infections, the same group therefore proposed a classification for bloodstream infections, with HCAI criteria that are nearly comparable to those of the present HCAP definition.

Later, research conducted in the USA on a significant number of positive-culture HCAP solidified the idea behind HCAP by demonstrating that the microbial etiology was comparable to that of HAP.

In many areas, including the microbial etiology, the definition of risk factors for MDR infections, and the indications for empiric antibiotic treatment, methodological heterogeneity in the majority of studies published on HCAP since then has unfortunately led to more confusion than understanding. The fact that the present "HCAP concept" covers a heterogeneous group of patients with a wide range of diseases as well as, in some studies, people with apparent immunosuppression is another crucial aspect that casts doubt on it.

Broad spectrum antimicrobial medicines should be advised because theoretically all of these patients have a possibly higher risk of colonization and infection with MDR bacteria. A number of authors have voiced their concern that this definition is too broad, noting that not all patients are at equal risk for MDR pathogens and that routine use of broad spectrum medications may result in overuse of antibiotics, create selection pressure for MDR organisms, and raise healthcare costs. Additionally, it's possible that the existing definition of HCAP overlooks

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other crucial elements for patients' clinical management, such as the evaluation of functional status, the severity of the illness, the danger of broncho-aspiration, and the limitations of therapeutic effort.

Fragments of sections

This demographic tends to be older, has several comorbid conditions, is at increased risk for ambition, has poor functional status, and has less autonomy in their everyday lives. All of these have an intrinsically higher risk of death that alters the severity of the pneumonia.

Pneumonia related with dialysis

Due to the increased risk of pathogen transfer from patient to patient in the hemodialysis clinic and the selective pressure brought on by antibiotic exposure, patients who receive chronic hemodialysis are susceptible to the colonization of MDR bacteria. In patients undergoing CHD, it was discovered that lung illness, recent antibiotic use, and recent hospital admission were all strongly associated with MRSA colonization.

Prior hospitalizations within the previous 90 days and usage of antibiotics

This population is susceptible to having infections that are uncommon in the community colonise their upper respiratory and gastrointestinal tracts. This is typically connected to long-term usage of high spectrum antibiotics, which puts MDR bacteria under selection pressure. The primary pathogenic mechanism of HCAP has been postulated to be the following micro aspiration of MDR pathogen acquired during the hospital exposure.

Patients getting home infusion therapy or wound care develop pneumonia

Unfortunately, epidemiological research on the prevalence of pneumonia in patients receiving intravenous or wound treatment at home is lacking. Clinical experience indicates that these behaviors are frequently linked to local infections. Pneumonia through hematogenous spread of methicillin-resistant S. aureus and methicillin-susceptible S. aureus.

Hcap microbial aetiology

There is a lot of variation between researches; however a wide variety of pathogenic microorganisms may be the cause of HCAP. In the aforementioned retrospective study by Kollef, which included 4543 pneumonia patients in total 20% of who had HCAP. The most common pathogen was aureus, which is typically referred to as a nosocomial pathogen. Micek also noted that HCAP had a greater fatality rate than CAP.

Clinical results and the effect of following recommendations

As previously stated, the studies that have defined the HCAP population have revealed that these patients are older, have more comorbidities, present with a more severe disease, and may also have limitations on diagnostic procedures and treatment due to ethical considerations in this particular population. As a result, the HCAP population has an inherent increased risk of dying from pneumonia.

CONCLUSION

To sum up, we can say that, based on the studies mentioned above, HCAP patients present more frequently with severe pneumonia and have higher mortality compared to CAP patients, but that MDR pathogens are only implied in a variable percentage of cases and do not seem to be the specific or direct cause of the increased mortality, and that treatment that complies with guidelines is not linked to a better clinical outcome.