

AUTHORS' LIST

COMMUNITY ACQUIRED PNEUMONIA COMMENTARY

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MESSAGES

Dr. Muhammad Irfan

Community-acquired pneumonia (CAP) is a common and potentially serious respiratory infection with diverse causative agents and variable clinical presentations. It is a leading cause of morbidity and mortality worldwide, particularly among vulnerable populations such as the elderly, young children, and individuals with underlying medical conditions. Timely diagnosis, appropriate treatment, and preventive strategies are essential to reduce the burden of CAP and improve patient outcomes.



Community-acquired pneumonia poses substantial challenges in developing countries, primarily due to limited access to healthcare, socioeconomic factors, malnutrition, diagnostic limitations, lack of vaccination programs, antimicrobial resistance, and inadequate health education. Addressing these challenges requires a comprehensive approach involving improved healthcare infrastructure, enhanced access to diagnostics and vaccines, promotion of public health education, and sustainable strategies for appropriate antibiotic use. By tackling these challenges, it is possible to reduce the burden of CAP and improve outcomes for individuals in resource-limited settings.

It has been a great privilege for me to participate as a speaker and panelist in the International Respiratory Forum 2022 (IRF 2022) organized by Getz Pharma. The survey allowed us to emphasize many valuable information regarding the challenges in management of CAP in both adults and children. The publication of the findings from IRF 2022 will contribute to address the challenges in various aspects in management of CAP.

I would like to appreciate and encourage Getz Pharma's entire team for organizing the IRF 2022 and working on the publications to extend this valuable information to other peers and colleagues of respiratory medicine.

MESSAGES

Dr. Imelda M Mateo

Pneumonia in adults just like in children is a major public health problem and requires effective interventions. Several risk factors such as active and passive smoking, concomitant chronic cardiovascular and neurological illnesses, heavy alcohol intake, major trauma or surgery, long periods of immobility, indoor air pollution, crowding, poor dental health, old age and institutional habitat or care account for the high incidence and mortality from the disease.

In the Philippines, Pneumonia has always been one of the top ten causes of mortality and one of the top five causes of morbidity. Figures from the 2021 Field Health Services Information System (FHSIS) report by the Department of Health (DOH) showed that pneumonia killed over 76,000 people in the Philippines.



There is an urgent need to vigorously renew our efforts against pneumonia in order to meet the goal of WHO in the control of the disease.

It was both a great opportunity and a privilege to participate in The International Respiratory Forum 2022 (IRF 2022) in Ho Chi Minh City, Vietnam, as a member of the Scientific Committee and a panelist in the Pneumonia symposium. A study through survey was conducted among 140 pulmonologists from 11 countries. A predesigned structured questionnaire was developed pertaining to challenges faced by each stakeholder for CAP management, including the patients, their family/caretakers, healthcare professionals, and healthcare policymakers & organizations in low-middle income countries.

A publication of the consensus from IRF 2022 will greatly contribute to addressing the challenges in various aspects of the management of Pneumonia.

I would like to extend my sincerest gratitude to Getz Pharma and its entire team for making me a part of this academic activity and for the efficient administrative support in organizing the IRF 2022 and the current publication.

MESSAGES

Dr. Kenneth Alberca

Community-Acquired Pneumonia (CAP) is one of the most common cause of mortality in developing countries such as the Philippines. It is of great importance for us pulmonologists who are in the frontlines in managing this disease to identify and address the complex and unique needs of every individual with CAP especially in the elderly patients with multiple co-morbidities in order to improve patient outcomes. The challenge sometimes lie in the health- seeking behavior of our patients in which there are significant delays in consultation due to financial and inaccessible health care institutions especially in people living in far-flung or geographically isolated areas. Hopefully, this will be addressed in our country with the recent approval of the universal health care law which seeks to provide free consultations to indigent patients and for the expansion of rural health units in order to provide easy accessibility for health concerns in patients living in far-flung areas.



During the IRF 2022, it was discussed that early consultation for respiratory symptoms, timely referral for hospital admission, proper antibiotic treatment and controlling comorbidities are the factors for improved patient outcomes in patients with CAP.

I thank the organizers for the successful conference, indeed there was a fruitful exchange of ideas and best practices in terms of pulmonary management.

COMMENTARY NO. 2

Challenges in the Management of Community-Acquired Pneumonia in Low-Middle Income Countries.

Abstract

Despite progress in developing new and powerful medications, Community-acquired Pneumonia (CAP) is still closely linked to significant morbidity and mortality, especially in Low-middle income countries (LMICs). Hence, a group of experts gathered to discuss the main challenges associated with CAP management by the stakeholders (patients, their families/caretakers, Healthcare professionals, and Healthcare policymakers & organizations). During the commencement of the International Respiratory Forum Conference 2022 held in Ho Chi Minh City, Vietnam, a survey was conducted, including 140 pulmonologists from 11 countries. A predesigned structured questionnaire was developed pertaining to challenges faced by each stakeholder for CAP management in LMICs. Physicians were randomly divided into four groups, and only one section of the questionnaire was distributed among the participants to determine their opinion regarding that respective stakeholder's challenges. Among the patient-related challenges, most physicians believed that self-medication was the most significant reason behind the high mortality rate from CAP as the patients continue to have various troubles in seeking timely diagnosis and treatment. It was found that healthcare expenditure is the most intriguing challenge experienced by families and caretakers of patients with CAP. Moreover, 52% agreed that the diagnosis made by healthcare providers are primarily based on clinical judgment, and Pneumonia Severity Index (PSI) is not commonly used for clinical prediction and patient outcomes. The physicians mostly believed that healthcare policymakers must focus on establishing early diagnostic and treatment strategies to reduce hospitalization rates and costs.

Keywords: Community-Acquired Pneumonia, Management, Challenges.

Introduction

Community-acquired Pneumonia (CAP) is a common infectious disease typically caused by bacteria or viruses. It is characterized by inflammation of the lung tissue, which leads to symptoms such as cough, chest pain, fever, and difficulty in breathing^{1,2}. CAP can occur in people of all ages, but it is more common in older adults and people with chronic illnesses³. There are various types of CAP,

including viral, bacterial, and atypical Pneumonia. Bacterial Pneumonia is the most common form of CAP and is typically caused by *Streptococcus pneumoniae*⁴. This type of Pneumonia can be severe, especially in older adults and people with chronic illnesses, and it can be associated with high hospitalization rates and mortality. The risk factors for CAP include smoking, exposure to air pollution, and having a weakened immune system⁵.

Factors influencing the prognosis of CAP include the patient's age, overall health, and the type of bacteria or virus causing the infection⁶. It is more common in older adults and people with underlying health conditions, such as chronic obstructive pulmonary disease (COPD), heart failure, and diabetes. These co-morbidities can make the management of CAP more complex. Treatment usually involves antibiotics and supportive care, such as oxygen therapy and fluid replacement. However, the management approach varies depending on the underlying condition, the severity, and the cause of the infection⁴.

There are several challenges in managing community-acquired Pneumonia (CAP); it can present with a wide range of symptoms, making it difficult to diagnose. In some cases, the clinical presentation may be non-specific, leading to a delay in diagnosis⁷. The causative pathogen of CAP can be challenging to identify, as a variety of bacteria, viruses, and fungi can cause it. Bacterial infections often cause CAP, and antibiotic resistance is becoming an increasingly common problem. This can make it difficult to choose an appropriate antibiotic treatment.

In order to control CAP, it is essential to administer antibiotics as soon as necessary⁸; however, the best course of action has not yet been determined. More significant mortality has been linked to initial antimicrobial therapy lacking efficacy against the offending microorganisms⁹. When contrasting beta-lactam monotherapy with beta-lactam plus macrolide or quinolone, the cluster RCT from Postma et al. displayed the same efficacy¹⁰. The ongoing argument between -lactam plus macrolide and -lactam plus fluoroquinolones in SCAP remains unresolved¹¹. The initial examination of CAP patients must include a severity assessment¹². There

is still no agreement on the best assessment tool or how to use it in clinical practice^{13,14}. Self-medication, or the use of over-the-counter medications or antibiotics without the guidance of a healthcare professional, can be a concern in the management of CAP. It is known for a wide range of clinical courses, from mild and self-limiting to severe, with sepsis and septic shock that leads to ICU admission and even death. Identifying the high-risk groups and early interventions for those is crucial¹⁵. In some areas, there may be limited access to healthcare, making it difficult for people with CAP to receive appropriate treatment.

The present study aimed to evaluate healthcare providers' perception regarding the challenges faced by each stakeholder, including the patients, their family/caretakers, healthcare professionals, and healthcare policymakers and organizations related to CAP management.

Methodology

A survey was conducted during the International Respiratory Forum conference 2022 in Ho Chi Minh City, Vietnam. A total of 140 pulmonologists from 11 countries participated in the study. A predesigned structured questionnaire was developed pertaining to challenges faced by each stakeholder for CAP management, including the patients, their family/caretakers, Healthcare professionals, and Healthcare policymakers & organizations in Low-middle income countries.

Verbal consent was obtained, study participants were randomly divided into four groups, and only one section of the questionnaire was distributed among the participants of each group. The questions and their options in each questionnaire addressed the documented key challenges of disease management and their possible solutions relevant to the assigned stakeholder group. The participants of each group were supposed to vote on the most appropriate options per their clinical experience.

For statistical treatment, the data analysis was conducted using SPSS Version 22.0. The quantitative data were presented as frequencies and percentages. SLIDO software¹⁶ was used to present the survey results at the end of the conference.

Results

Among the patient-related challenges, 67% of physicians believed that self-medication was the most significant reason behind the high mortality rate from Pneumonia as the patients continue to have various troubles in seeking

timely diagnosis and treatment. Moreover, 78% of them reported that the most common misconception of the patients causing reluctance in using the antibiotics appropriately, was that the patients believe that antibiotics can be stopped once symptoms are relieved. Regarding family or caretakers of patients with Pneumonia, 58% of physicians believed that healthcare expenditures are the most intriguing challenge. Surprisingly, 52% confirmed that the diagnosis is based on clinical judgment and Pneumonia Severity Index (PSI) is not commonly used for clinical prediction and patient outcomes. While 30% preferred other simpler methods for diagnosis. Healthcare policymakers must focus on establishing early diagnostic and treatment strategies to reduce hospitalisation rates and costs. As per the physician's opinion, the lack of health facilities and vaccination was the major gap in prevention from CAP, leading to poor disease outcomes.

Discussion

During the commencement of the International Respiratory Forum Conference 2022 held in Ho Chi Minh City, Vietnam, data was gathered on the perception of healthcare providers regarding the challenges in CAP management. It was found that the patients who self-medicate may not have a proper diagnosis of CAP and, as such, may not be taking the appropriate medication for their condition. This can delay recovery and potentially lead to complications. Self-medication with antibiotics can lead to the development of antibiotic-resistant bacteria, making it more difficult to treat CAP and other infections in the future¹⁷⁻¹⁹. In this survey, 67% of participants reported the self-medicating behaviour of the patients.

Healthcare expenditures can be a significant challenge for the families and caregivers of patients with Pneumonia, as the costs associated with treatment and management of the disease can be high²⁰. Severe conditions requiring hospitalisation and intensive care, which can be costly, impose greater challenges^{21,22}. After being discharged from the hospital, patients may require follow-up care, such as physical therapy or home health care. More than 50% of physicians reported that healthcare expenditure is the most intriguing challenge experienced by family and caretakers of patients with Pneumonia. While 89% believed early treatment could reduce hospitalisation and overall treatment cost. In severe cases, Pneumonia may lead to other severe conditions, such as sepsis, which require more costly and prolonged interventions like mechanical ventilation and organ support.

Table 1: Responses obtained from the healthcare providers for challenges in CAP management.

Questions	Responses	%
Patients		
Despite so many newer antibiotics, mortality from Pneumonia has not dropped as the patients have various troubles in seeking timely diagnosis & treatment; what are the most significant reasons?	Lack of access to quality healthcare in Low-middle income countries	58
	Self-medication (under and overdosing on antibiotics or use of home remedies)	67
	Poor air quality in the environment and domestic air pollution	20
	Delay in reporting to the HCP and hence, delayed diagnosis	36
What are the most common misconceptions of the patient's causing reluctance in using the antibiotics appropriately?	Patients believe that antibiotics can be stopped once symptoms are relieved	78
	Patients consider antibiotics as dangerous medications believing that they have grave and lethal side effects	35
	Patients do not prefer antibiotics for infections with low-grade fever	16
	Patients fear that antibiotics reduce hunger and cause weakness if used for a longer period	20
What are the barriers to ensuring patient adherence to HCP's advice?	Low education level of patients	46
	Patient not following the complete duration of therapy once the symptoms resolve	57
	Normalizing symptoms as a mild seasonal flu	15
	Cost of therapy	65
In Pneumonia, which symptom causes the biggest hindrance in the patient's daily activities?	Shortness of breath	65
	Cough	35
	Fever	29
	Pleuritic chest pain	42
Family and Caretakers		
What is the most intriguing challenge experienced by family and caretakers of patients with Pneumonia?	Frequent infections in a polluted area	21
	Hindrances to perform daily activities like education, job, etc.	21
	Healthcare expenditures	58
	Unawareness of dietary and hygiene requirements of pneumonia patients	16
What are the major concerns of dealing with the most vulnerable group of patients (old age, pediatrics) concerning age and complications?	Dependence on others to take medications timely	37
	Variable response to different medications	32
	Poor awareness of symptoms and difficulty expressing the intensity of illness	68
	Developmental factors in children and aging factors in elderly	5
What measures are the most essential while taking care of a pneumonia patient?	Warm beverages and avoidance of cold beverages	26
	Proper warm baths	0
	Regular use of steam through humidifiers or nebulizers	26
	Use of humidifiers and ventilators to keep the room air clean and well ventilated	63
What measures are important for the parents to take to reduce the frequency of respiratory infections in their children, especially where childhood respiratory infections are very common in the community?	Getting the children vaccinated timely according to the national immunization plan	68
	Provide a clean air environment at home	37
	Ensuring good hygiene practices	32
	Provide healthy and organic nutrition to avoid weak immunity	42
Healthcare Professionals		
Which decision during the management of CAP is more vital?	Deciding about In-patient or out-patient treatment	30
	Choosing an antibiotic with a narrow or broad spectrum (deciding the preferred class)	26
	Patients presenting with co-morbidities	61
	Antimicrobial resistance with potent drugs	22
Barrier to CAP diagnosis-specific-treatment based on Culture and Sensitivity is because of?	Culture and Sensitivity reports take time	65
	Patient reports after starting antibiotics	43
	Cost factor	17
	Patients' patience to wait for laboratory results	13

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Pneumonia Severity Index (PSI) is not used commonly for clinical prediction and patient outcomes because of the;	Complexity of tool	26
	Time and resource limitations	13
	Other simpler methods are used	30
	Diagnosis based on clinical judgment	52
Pneumonia is usually over/under-diagnosed because of the following conditions	Diagnosed and treated empirically based on symptoms without any investigation	55
	Pneumonia typing usually not done due to a paucity of resources and time	0
	Mimicking conditions like COPD, RHF, Flu, etc.	41
	Patients relying on OTC medications or alternate domestic remedies to avoid physician visits and treatment costs	32
HCPs spend less time on detailed history and examination in patients with suspected CAP because;	History and examination are usually non-specific	9
	Patient over-load	57
	Shortage of time	26
	Diagnose based on experience	52
Healthcare policymakers & organizations		
Which is the most important strategy to reduce overall treatment costs;	Low-cost antibiotic therapy	22
	Early treatment reduces hospitalization	89
	Managing adverse events and avoiding patient re-visits	22
	Keen patient follow-ups to monitor treatment outcomes	22
Increasing prevalence of concomitant chronic illnesses worsens CAP prognosis, particularly with the following diseases;	Past history of successful Pulmonary Koch's treatment	0
	Obstructive pulmonary diseases	89
	Cardio-vascular diseases	44
	Asthma	22
Antibiotic resistance is a big challenge; what needs to be ruled out to prevent AMR while taking history;	Use of any antibiotic with dosage and duration over the last three months for any infection	56
	Detailed medical record/ history to know any other concomitant illness/ drugs	33
	Exposure history (traveling, visits, family exposure, occupation)	0
	Any habitual self-medication history	44
Where are the gaps in prevention from CAP leading to poor disease outcomes?	Socioeconomic challenges include people living in close proximities	56
	Lack of health facilities and vaccination	78
	Low patient awareness	11
	Less time spent by HCPs on patient counseling	22

Pneumonia is typically diagnosed based on symptoms, physical examination, and diagnostic tests. A person with Pneumonia will typically have symptoms such as cough, chest pain, fever, and difficulty in breathing. A physical examination may reveal signs of Pneumonia, such as crackles or wheezing in the lungs or an elevated respiratory rate²³. However, some diagnostic tests are also necessary to confirm the diagnosis; in this survey, 52% of participants reported that diagnoses are based on clinical judgment, and Pneumonia Severity Index (PSI) is not commonly used for clinical prediction and patient outcomes.

People with chronic illnesses, such as obstructive pulmonary diseases (such as chronic obstructive pulmonary disease or COPD), are at a higher risk of developing complications from Pneumonia. Chronic illnesses can weaken the immune system and make it

more difficult for the body to fight off an infection²⁴. Additionally, chronic obstructive pulmonary disease (COPD) can cause structural changes in the lungs, making it more difficult for mucous and bacteria to be cleared, which increases the risk of a secondary infection such as Pneumonia. 89 % of participants reported that increasing prevalence of concomitant chronic illnesses worsens CAP prognosis, particularly with obstructive pulmonary diseases. Patients with COPD and Pneumonia have increased morbidity and mortality; this is why managing these patients requires a multidisciplinary approach and closer monitoring.

Though this survey is based on a small sample size, this pilot project plays a pivotal role in highlighting the major challenges each stakeholder faces as per the physician's perceptions. Hence this data can be used to design future large-scale hypotheses to monitor CAP management challenges in each category.

Conclusion

CAP remains a major healthcare challenge in LMICs due to associated mortality rates, complications, and short and long-term consequences. In this article, we provided the list of challenges faced by patients, families, healthcare providers, and policymakers 1) Patient-related challenge; self-medication was the most significant reason behind the high mortality rate from Pneumonia as the patients continue to have various setbacks in seeking timely diagnosis and treatment. 2) Related to family or caretakers of patients with Pneumonia, the financial burden of healthcare expenditures can be a significant stressor for families and caregivers and can negatively impact the patient's recovery and overall well-being. 3) Among healthcare providers, the lack of the use of PSI for clinical prediction and patient outcomes was common, leading to delayed diagnosis and induced complications.⁴ Healthcare policymakers must focus on establishing early diagnostic and treatment strategies to reduce hospitalization rates and costs.

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