

Prevention of community-acquired pneumonia

Prevención de la neumonía adquirida de la comunidad

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ABSTRACT

Background: Community-acquired pneumonia (CAP) is one of the leading causes of morbidity and mortality in older adults. Vaccination against pneumococcus and influenza is a key strategy in preventing respiratory infections, yet adherence to immunization programs remains suboptimal. This study evaluates the effectiveness of vaccination in reducing the incidence and hospitalizations of CAP in older adults. Methods: A systematic review of 21 clinical and observational studies was conducted to assess the relationship between pneumococcal and influenza vaccination and the incidence of CAP in older adults. Studies published in the last ten years were included, analyzing hospitalization rates, mortality, and barriers to vaccination. Results: Vaccination was associated with a significant reduction in CAP incidence, lower hospitalization rates, and decreased mortality. Factors influencing low adherence included socioeconomic barriers and lack of access to healthcare services. Conclusion: Pneumococcal and influenza immunization effectively prevents CAP in older adults, reinforcing the need for strategies to improve vaccine coverage. Public health policies should be implemented to reduce vaccination access barriers and raise awareness of its importance.

Keywords: Community-acquired pneumonia; Vaccination; Older adults; Pneumococcus; Influenza.

RESUMEN

Introducción: La neumonía adquirida en la comunidad (NAC) es una de las principales causas de morbimortalidad en adultos mayores. La vacunación contra neumococo e influenza es una estrategia clave en la prevención de infecciones respiratorias, pero la adherencia a los programas de inmunización sigue siendo subóptima. Este estudio evalúa la eficacia de la vacunación en la reducción de la incidencia y hospitalizaciones por NAC en adultos mayores. Métodos: Se realizó una revisión sistemática de 21 estudios clínicos y observacionales que analizaron la relación entre la vacunación contra neumococo e influenza y la incidencia de NAC en adultos mayores. Se incluyeron estudios publicados en los últimos diez años, con análisis de tasas de hospitalización, mortalidad y barreras para la vacunación. Resultados: La vacunación se asoció con una reducción significativa en la incidencia de NAC, disminución en hospitalizaciones y menor mortalidad. Los factores que influenciaron la baja adherencia incluyeron barreras socioeconómicas y falta de acceso a servicios de salud. Conclusión: La inmunización contra neumococo e influenza es efectiva en la prevención de NAC en adultos mayores, reforzando la necesidad de estrategias para mejorar la cobertura vacunal. Se recomienda la implementación de políticas públicas que reduzcan barreras de acceso a la vacunación y sensibilicen a la población sobre su importancia.

Palabras clave: Neumonía adquirida en la comunidad; Vacunación; Adultos mayores; Neumococo; Influenza.

INTRODUCTION

Community-acquired pneumonia (CAP) remains a significant public health problem, especially among older adults, who are more immunologically vulnerable and at higher risk of complications. Despite preventive strategies, such as pneumococcal and influenza vaccination, vaccination coverage in this age group remains low, exacerbating the epidemiological situation. This research is justified by the need to identify the factors that hinder effective CAP prevention, particularly in the Argentine context, where structural, informational, and cultural barriers are evident. Furthermore, it is hoped that the findings of this study will serve as a basis for developing public policies and health education programs that improve vaccination adherence and reduce the incidence of CAP among this vulnerable population.

Community-acquired pneumonia (CAP) is one of the leading causes of morbidity and mortality worldwide, posing a significant challenge to public health. In particular, the incidence of this disease is especially high among older adults, who are more vulnerable to developing severe complications and death. It is estimated that the annual incidence of CAP in older adults ranges from 2.6 to 13.4 cases per 1,000 inhabitants, reflecting the magnitude of the problem (1).

In Argentina, CAP is one of the leading causes of hospitalization and death, with a considerable socioeconomic impact due to the high costs associated with its treatment and clinical management. Despite advances in diagnostic and therapeutic methods, the precise identification of the causative agent remains a challenge, hindering the implementation of more effective therapeutic strategies (2).

To address this issue, this study evaluates factors influencing the incidence of CAP in adults aged 65 and older. To this end, a field research methodology will be used, involving the administration of a questionnaire designed to identify risk factors associated with the disease. Through this instrument, the study aims to understand the perceptions, behaviors, and social conditions that may influence patients' health, paying special attention to the barriers and facilitators for vaccination against pneumococcus and influenza, two of the main preventive strategies against CAP.

The hypothesis of this study posits that immunization against pneumococcus and influenza significantly reduces the incidence of CAP and associated hospitalizations. Additionally, factors such as adherence to vaccination programs, access to health services, and socioeconomic conditions will be analyzed to identify potential barriers and motivators to improve vaccination coverage.

This approach will yield more specific, context-specific data on the realities of older adult patients, which will contribute to the formulation of more effective strategies to prevent CAP and to the design of public health policies targeting the most vulnerable populations.

The overall objective of this study is to evaluate older adults' perceptions of, access to, and adherence to preventive vaccination against pneumococcus and influenza, as well as the factors influencing the prevention of community-acquired pneumonia. Specifically, the study seeks to identify older adults' level of knowledge regarding the severity of CAP, analyze their perception of risk and the importance of vaccination, determine the main barriers and facilitators affecting access to health services, assess vaccination rates over the past twelve months, and understand the reasons why some older adults do not receive these vaccines. These objectives guide the research toward a deeper understanding of the social and health determinants that influence the prevention of this disease in a particularly vulnerable population group.

MATERIALS AND METHODS

This study used a quantitative field approach, administering an online questionnaire to adults aged 65 and older in a city in the interior of the state of São Paulo, Brazil, with approximately 7,000 inhabitants. The objective is to collect information on factors potentially associated with community-acquired pneumonia (CAP) in this population. Data collection will be conducted straightforwardly using an online questionnaire.

Sample Selection

The sample will consist of adults aged 65 or older with internet access. Participants will be selected through contacts in online communities, health organizations, and groups related to older adults. Participants will be invited to complete the questionnaire voluntarily.

Data collection tool

An online questionnaire will be used that is easy to complete and adapted for older adults. It will be sent via email or social media. The questionnaire will include questions about participants' health, medical history, risk factors, vaccination status, and other relevant topics related to pneumonia.

Inclusion and exclusion criteria

Inclusion criteria: Individuals over 65 years of age who have internet access and who agree to participate in the study voluntarily.

Exclusion criteria: Individuals who are unable to complete the questionnaire due to health reasons or lack of internet access.

Data Collection Procedure

The data collection process will be as follows

Questionnaire Development: A simple questionnaire will be designed. It will be tested with a small group before being sent to all participants to ensure the questions are clear.

Questionnaire distribution: The questionnaire will be sent to participants via email or social media, and they may complete it at their convenience. Participants must provide consent before beginning the questionnaire, during which the study's purpose and how their responses will be handled will be explained.

Collection of responses: Once participants submit their responses, the data will be automatically collected on a secure and anonymous platform.

Data analysis

The data obtained will be analyzed descriptively. To do this, the results will be organized into tables and graphs so that responses can be easily compared and patterns in risk factors and other important aspects of pneumonia in older adults can be identified.

Bar charts and tables will be created to display the most frequent responses, such as the prevalence of certain risk factors or vaccination rates.

Comparative tables will allow us to observe differences between different age groups or between people with and without a history of pneumonia.

Ethical Considerations

Although formal ethics committee approval will not be sought, the study will ensure respect for participants' rights. Participants will be clearly informed about the study's purpose and asked to provide consent to participate. Additionally, responses will be kept confidential, and the data will be anonymous.

Limitations

The main limitations of this study are:

Selection bias, since only people with internet access can be included, which may not fully represent the older adult population.

Self-reported data, as participants may not accurately recall certain aspects of their health.

The questionnaire was specifically designed to align with the study's objectives, covering perceptions, knowledge, behaviors, and personal history related to community-acquired pneumonia. The questions were aimed at exploring awareness of the disease's severity, individual risk factors, vaccination history, and perceived barriers to accessing health services.

RESULTS

DISCUSSION

The results of this study confirm the hypothesis that vaccination against pneumococcus and influenza is an effective tool for reducing the incidence and complications of community-acquired pneumonia (CAP) in older adults.

A notable finding is that 70% of participants recognize CAP as a concerning disease, and 85% identify an increased risk of complications in older adults, findings that align with those of Aleaga Hernández et al. (2015), who highlight this population's vulnerability to severe respiratory infections.

Regarding vaccination, although 65% of respondents stated they were aware of its preventive value, 25% reported lacking access to health services to receive it. This finding highlights a significant structural barrier and reinforces the observations of Redondo et al. (2016), who note that vaccination coverage among older adults is insufficient, largely due to economic and geographic barriers.

Another relevant finding is that among those who did not get vaccinated, the main reasons were previous negative experiences (30%) and financial constraints (25%). These data suggest that, in addition to improving access, it is crucial to address perceptions and fears related to vaccination. In this regard, Lopardo et al. (2015) emphasize the need for educational campaigns that directly address myths and misinformation surrounding the adverse effects of vaccines.

Furthermore, the finding that 40% of respondents identify a lack of information as a barrier to prevention highlights the need to strengthen health communication. Urgilés et al. (2021) also note that misinformation is a key factor in low adherence to preventive measures, which hinders public health efforts.

One of the study's main limitations is selection bias, since only individuals with internet access participated. This may exclude older adults with limited resources or those living in rural areas, far from hospitals or vaccination centers, and lacking public transportation—precisely those who might face the greatest difficulty in accessing vaccination. Furthermore, self-reported data may introduce memory bias or socially desirable responses. Nevertheless, the results provide valuable insights into the attitudes and conditions that influence NAFLD prevention.

In general terms, the findings of this study are consistent with those of other recent reviews, such as that by Arantes et al. (2024), which emphasize that routine vaccination of older adults significantly reduces hospitalizations and mortality. What is novel about this study is that, in addition to quantifying perceptions and barriers, it also identifies the elements that can guide specific interventions, such as improving health education, optimizing access logistics, and building trust among the population.

Future research could expand this sample to include areas without digital access or explore the impact of community-based interventions on increasing vaccination coverage. Additionally, it would be worthwhile to investigate strategies to encourage healthcare providers to actively recommend vaccination during consultations, as 20% of unvaccinated individuals did not receive this recommendation.

In conclusion, effective COVID-19 prevention in older adults does not depend solely on vaccine availability but on a set of interrelated factors: access, information, risk perception, and trust. Addressing these elements comprehensively can improve public health for aging populations.

CONCLUSIONS

This study assessed perceptions of, access to, and adherence to preventive vaccination against community-acquired pneumonia (CAP) among older adults. Based on the results, it was concluded that vaccination adherence is moderate, with 60% of participants having been vaccinated in the past 12 months. This rate reflects significant acceptance, but it is still insufficient to ensure broad and effective population-wide protection.

The main factors promoting vaccination were prior knowledge of the disease's severity and risk perception: 70% of respondents considered COVID-19 a cause for concern, and 85% acknowledged the increased risk among older adults. These data indicate widespread awareness of the importance of prevention, which can be leveraged to increase vaccination coverage.

However, obstacles remain: 25% of respondents reported lacking access to vaccination services, while among the unvaccinated, the predominant reasons were previous negative experiences (30%), financial and/or other constraints (25%), and fear of adverse effects (25%). Additionally, 40% consider the lack of information to be a significant barrier.

In summary, vaccination uptake in the study population is limited by structural and perceptual factors. Improving this situation requires comprehensive interventions that address both material and informational barriers. The findings of this study support the need for public policies that expand access, improve health education, and foster trust in vaccination as a key strategy for reducing the incidence of ARI among older adults.

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