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PRIMARY HEALTH CARE IN BACTERIAL PNEUMONIA NE: A LITERATURE REVIEW

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Abstract: Introduction: Bacterial pneumonia is an inflammatory disease of the lungs, caused mainly by the bacterium Streptococcus pneumoniae. It is a disease with a high ratemortality, mainly affecting children. It is estimated that 50% of these deaths occur in Africa. In addition, bacterial pneumonia is easy to spread. The Unified Health System (SUS) offers free prevention and treatment of this disease. It is worth noting that the flu vaccine (Influenza), which is available from the SUS, can reduce hospital admissions and mortality from pneumonia by up to 80%. **Objectives: To** identify in the literature how care is provided in Primary Health Care (PHC) for bacterial pneumonia, caused by the bacterium Streptococcus Pneumoniae. **Methods:** This is an review integrative literature articles published between 2016 and 2023. These articles are linked to the databaseScientific Electronic Library Online (SCIELO), Google Scholar, the Ministry of Health and other relevant sources. Initially, 20 articles were and submitted to an analysis, after which only 7 articles fully met the guiding question of the research. The following operators were usedselected proximity : "PneumoniaBacterial", "CarePrimary Health " and "Primary Prevention". **Results:** In the analysis of the articles, three categories were identified: The importance of Vaccination in Prevention; Early Diagnosis and Treatment in Primary ; CareImpact of PHC on Reducing Hospitalizations. It has been seen that early treatment of bacterial is essential to avoid pneumonia serious. complicationsIt is estimated that it is responsible more than two million deaths a year in children under five. It is also crucial to consider that social inequalities influence access to servicesadequate health, which can aggravate the impact of bacterial pneumonia in vulnerable populations. **Final considerations**: Social inequalities, such as income and education, influence access to adequate health services, which aggravates the impact of bacterial pneumonia on vulnerable. populationsIt is believed that the study has contributed to raising public awareness of the importance of public policies that promote equitable access to preventive and curative health care.

Keywords: Bacterial Pneumonia, Primary Health Care, Primary.Prevention

INTRODUCTION

Bacterial pneumonia is an inflammatory reaction in the lungs caused by microorganisms such as viruses, bacteria and fungi. It is a disease with high mortality rates and contamination occurs in a very simple way, through the air, saliva, blood transfusion, secretions, sudden changes in temperature and damp, closed places. (ASSUNÇÃO, 2018)

Bacterial, pneumoniacaused mainly by the bacterium Streptococcus Pneumoniae, is a serious and common disease, especially during the low temperature season. When not treated properly and early onit can lead to severe complications and death. Despite this, the SUS offers the Brazilian population prevention and treatment for pneumonia, which makes it essential to disseminate information about care and the importance of early diagnosis in order to reduce the morbidity and mortality associated with this disease (PNEUMOCENTER, 2024).

During the winter, cases of pneumonia increase significantly, due to the cold weather which can reduce people's immunity, making them more susceptible to respiratory infections. In addition, common seasonal habits, such as keeping places closed and reducing fluid intake, increase the risk of infection (RIBEIRO, 2016). Low air humidity and sudden changes temperature also infavor the growth and spread of disease-causing microorganisms. It is therefore essential for the population to be aware of the symptoms and stay hydrated, since misinformation and negligence with these precautions contribute to the high

incidence of the disease. It is worth noting that the flu vaccine (Influenza), available from the SUS, can reduce hospital admissions and mortality from pneumonia by up to 80% (RIBEIRO, 2016).

Additional risk factors, such as smoking, alcohol, consumptionuse air conditioning and untreated colds, also increase people's to bacterial pneumonia. Smoking, in particular, causes inflammation in the airways, which facilitates vulnerability the entry of infectious agents and compromises immunity. Sudden changes in temperature, poorly ventilated and environments humid also aggravate the risk of contamination, especially in low-income populations who may have limited access to healthy, ventilated environments. (VARELLA, 2011)

The main symptoms of disease are shortness of breath, malaise, chest, cough and fever, but it can also cause changes in blood pressure, mental confusion, weakness, yellowish or greenish purulent mucus secretion and toxemia. painIt takes four to six weeks for to cure the main symptoms, but it can take up to three months for it to be completely cured (PNEUMOCENTER, 2024).bacterial pneumonia

In this scenario, PHC plays a fundamental role in reducing hospitalizations for pneumonia, since these services work to prevent exposure to risk factors, make early diagnoses and offer fast and efficient treatment to prevent the disease from worsening. However, access to these services can be limited by factors such as low income, poor schooling and lack of information, especially in more vulnerable communities. Even with the prevention and treatment services offered by the SUS, these barriers can contribute to the unnecessary progression of the disease, resulting in more hospitalizations and, consequently, serious cases and deaths (PINA, 2017).

The effectiveness of early treatment is a crucial factor in successful recovery from bacterial pneumonia. When treatment is started late or carried out inadequately, it increases the chances of serious complications, such as secondary infections and respiratory failure, as well as hindering the patient's rehabilitation. This reinforces the importance of PHC in providing rapid and adequate care, especially in situations of social vulnerability, where access to hospital resources may be limited (HATISUKA, 2014).

For the most vulnerable populations, such as children, bacterial pneumonia is especially dangerous and is the leading cause of infant deaths worldwide. It is estimated that 50% of these deaths occur in Africa, highlighting the importance of access to PHC and improved socioeconomic conditionsand educational. These factors are crucial for access to the necessary care, prevention and effective control of the disease, in order to significantly reduce the associated mortality rates (GALVÃO, 2009

In this context, the choice of theme is related to a need to socialize studies on the disease, to warn about the increase in cases of bacterial pneumonia and the lack of awareness among the population about prevention and existing treatments for this disease.

Therefore, the study aims to identify in the literature how care is provided in Primary Health Care (PHC) for bacterial pneumonia, caused by the bacterium Streptococcus Pneumoniae.

METHODOLOGY

This study is an integrative review of the literature on bacterial pneumonia, with a focus on primary health care, using articles published between 2016 and 2023. The aim is to analyze Brazilian scientific publications on the diagnosis, management and prevention of bacterial pneumonia, with special emphasis on the role of PHC.

The question that guided this research was: What has Brazilian published on the treatment of bacterial pneumonia in primary carescientific production health ?

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The search was carried out in the Scielo, Google Scholar, Ministry of Health and other relevant sources, using keywords indexed databasesin the Health Sciences Descriptors (DeCS), with the proximity operator: "Bacterial Pneumonia", "Primary Health Care" and "Primary Prevention". The research was carried out between March and June 2024.

The inclusion criteria were complete, articlespublished between 2016 and 2023, which address aspects of bacterial pneumonia, including diagnosis, prevention and the role of PHC in managing the disease. Full articles were used, ensuring that the information analyzed was sufficiently detailed for critical evaluation.

During the search, 20 articles were initially selected and submitted to a critical reading of the abstracts. After this analysis, 7 articles fully met the guiding question of the research. The selection was made based on the relevance of the topics covered (vaccination, diagnosisearly, treatment and the impact of PHC), methodological suitability and the quality of the evidence.scientific

The quality of the selected studies was assessed based on specific criteria, such as the clarity of the objectives, methodological rigor, the sample studied, and the analysis methods used, based on scientific evidence. The quality of the studies was also weighed up in relation to their contribution to understanding the role of PHC in the prevention and management of bacterial pneumonia.

After a critical analysis of the selected articles, the data collected was organized into three main categories to facilitate the analysis and interpretation of the results: 1 - The Importance of Vaccination in Prevention; 2 - Early Diagnosis and Treatment in Primary Care; 3 - The Impact of PHC on Reducing Hospitalizations.

The results were interpreted through exploratory, selective and analytical reading, taking into account the methodological quality of each study. The analysis included a comparison between the selected studies, highlighting convergences and divergences in the findings, especially with regard to the impact of PHC on the prevention and management of bacterial pneumonia. In addition, the implications of the findings for public health policies were discussed, with a focus on improving access to PHC and the effectiveness of preventive interventions.

RESULTS

The articles selected are shown in Table 1.below

Categories	Articles
The importance of Vaccination	**A2 and A7**
Early diagnosis and treatment in PHC.	**A1 and A3**
The impact of PHC on reducing hospitalizations.	**A4, A5 and A6**

Chart 2: Organization of themes into categories. Canoas, 2024

CATEGORY 1 - THE IMPORTANCE OF VACCINATION IN PREVENTION

Bacterial pneumonia is a very common respiratory infection caused by bacteria, fungi and viruses that affect the lungs. In Brazil, this disease represents a major public health challenge, which can be seen in a survey carried out by the state of Tocantins, which shows high numbers of cases of pneumonia in children. Its most common etiological agent is Streptococcus Pneumoniae, although it can also be caused by other bacteria and microorganisms. (ASSUNÇÃO, 2018) (BUENO, Natália, 2020)

Article 2 and **Article 7** point out the importance of vaccination in preventing the disease. Influenza vaccination can reduce the incidence of pneumonia, especially when combined with the pneumococcal vaccine, which reduces mortality, intensity symptom and morbidity. It also mentions international studies which indicate that annual vaccination against influenza can halve the risk of deaths associated with the disease, as well as attenuating the severity of symptoms and reducing

Article no.	Authors	Title	Objectives	Methods used	Year of Publication
A1	ASSUNÇÃO, Raissa Guará et al.	Bacterial pneumonia: epidemiological aspects, pathophysiology and advances in diagnosis	Discuss the epidemiology of bacterial pneumonia and innovations in diagnosis.	Systematic review and analysis.literature	2018
A2	SILVEIRA, Matheus Paravizo et al.	The effectiveness of the influenza vaccine in preventing pneumonia	Evaluating the effectiveness of influenza vaccination in pneumonia in different groupspreventing ages.	Cohort and analysis of data.study hospitalization	2023
A3	RAPOSO, Pedro et al.	Rehabilitation of respiratory function in people with bacterial pneumonia secondary to Influenza A.	To discuss the impact of respiratory rehabilitation on the recovery of patients with bacterial.pneumonia	Case with pre and post clinical evaluationstudy post-intervention.	2019
A4	TEIXEIRA, Ygor et al.	Analysis of hospitalization rates for pneumonia, bronchitis and asthma in the 20th decentralized area.health	To investigate hospitalization rates related pneumonia, bronchitis and asthma in a specific health area.	Analysis of data. hospital admissions	2022
A5	CAMARGOS, Paulo Augusto Moreira	Community-acquired in pneumonia childhood	Discuss the characteristics and epidemiology of community-acquired pneumonia in children.	Literature review and analysis of clinical data.	s/d
A6	PINA, Juliana Coelho	The role of primary health care in the hospitalization of children for pneumonia: a case-control study	To evaluate the influence of care primary in reducing hospitalizations for pneumonia in children.	Case-control study with data collection-clinical.	2017
A7	GUTIERREZ, Juliana	Pneumonia is preventable and treatment offered by SUS	Inform about the pneumonia prevention and treatment available on the options SUS.	Review of guidelines public health and data.epidemiological	2016

Chart 1: Characterization of the articles. Canoas, 2024.

the likelihood of serious complications, such as pneumonia, hospitalizations and admissions to intensive care units.(**A2**).

Article **7** reinforces the offer of vaccines in the SUS calendar and highlights the preferred public. The influenza vaccine is indicated for children aged 6 months to under 5 years, people aged 60 and over, workers, health indigenous people, pregnant women, women who have recently given birth, people deprived of their liberty, prison staff and people with diseases. chronic non-communicable The 10-valent pneumococcal vaccine is recommended for children at 2 and 4 months of age, with a booster at 12 months. The 23-valent pneumococcal vaccine is intended for indigenous people aged 5 and over without previous proof of vaccination, with an additional after 5 years.dose

The same article **A7** lists the treatment of the disease, which varies according to the causative agent: a) Bacterial: use of antibiotics; b) Viral: antipyretics and painkillers to relieve symptoms; antivirals may be necessary in severe cases; c) Fungal: specific drugs. In all suspected cases, it is essential to go to a Basic Health Unit for assessment and, if necessary, referral to reference units at other levels of complexity, such as hospitalization in more serious. situationsAlso, stay hydrated, especially during the winter, when dehydration can facilitate the spread of micro-organisms in the lungs.

CATEGORY 2 - EARLY DIAGNOSIS AND TREATMENT IN PRIMARY CARE

The two articles **A1 and A3** make important contributions on pneumonia, with different approaches. **A1** deals with the physiological effects of the disease, epidemiology and advances in diagnosis and treatment, which is fundamental to understanding pneumonia.

severity of pneumonia and the importance of proper prescriptionantibiotic. It highlights the importance of diagnostic advances and the appropriate use of antibiotics to reduce

mortality.Pneumonia affects the alveoli of the lungs, causing a series of symptoms. Every year there are 450 million cases of pneumonia in the world.

A3 focuses on the rehabilitation of a specific, casehighlighting the positive impact of nursing care on respiratory recovery. Both articles are complementary and reinforce the need for effective, multidisciplinary treatment. Patients on mechanical ventilation are up to 21 times more likely to develop the disease, and 20% of those who use the device for more than 48 hours can contract the infection. The study highlights advances in diagnostic methods that have contributed to a significant reduction in mortality from pneumonia., it emphasizes that the proper prescription and use of antibiotics is essential to maintain the decrease in the number of cases.

A3 also analyzed the effectiveness of rehabilitation nursing care in recovering the respiratory function of an elderly patient with pneumonia bacterial secondary to Influenza A. The study identified improvements such as reduced dyspnea, less need for oxygen therapy and improved lung auscultation after a four--day intervention plan.

CATEGORY 3 - IMPACT OF APS ON REDUCING HOSPITALIZATIONS

In this category, three studies were selected that show the complexity of managing respiratory diseases in children, and underline the relevance of preventive measures and appropriate treatments to minimize the effects of diseases.respiratory

A4 reveals how respiratory diseases, especially pneumonia, impact children's health and the importance of primary care in preventing hospitalizations. It is a study that analyzes hospitalization rates for pneumonia, bronchitis and asthma in the 20th Decentralized Health, Areainvestigating factors such as the prevalence of these conditions, the effectiveness of treatments and the epidemiological profiles of patients. The research highlights the importance of and preventive measures to reduce hospitalizations and improve patients' quality of life.

A5 discusses community-acquired pneumonia (CAP) in childhood, highlighting clinical signs, severity criteria, etiological agents and treatment. It also emphasizes the importance of early diagnosis, differentiation from other respiratory diseases and appropriate management, including antibiotics depending on the etiology. It also mentions preventive measures such as vaccination and breastfeeding.

A6 investigates the relationship between primary health care (PHC) and the hospitalization of children with pneumonia. It used a case-control design and analyzed factors such as access to PHC services, quality of follow--up and preventive interventions. The results indicate that effective follow-up in PHC can reduce hospitalizations, highlighting the importance of vaccination, early and proper management of the disease. The study reinforces the role of PHC in diagnosis preventing complications from childhood pneumonia.

DISCUSSION

The data presented indicates that bacterial pneumonia continues to be a significant threat to children's health, especially in regions with fewer medium and high-complexity health resources. The disease causes a significant number of deaths every year, especially in children under five, whose mortality rate is higher compared to other ages (SOUZA ET AL. 2022). Approximately 90% of deaths occur in developing, 50% of which are on the African continent (GALVÃO, 2009).countries

In the state of Tocantins, there were 73,831 cases between 2008 and 2018. It was also observed that the most affected ages were children between 1 and 4 years old and children under 1 year old, with 88% of cases affecting the second group, making them more vulnerable to the di-

sease. However, in children up to 4 years old, the incidence is 28.88% cases; children under 1 year old the incidence is 19.87% and 80 years + is 9.41%. (BUENO, 2020)

These results emphasize the importance of preventive strategies such as vaccination and improving living conditions. Immunization is an essential measure to reduce the incidence of pneumonia bacterial. A vaccine Pneumococcal 10-valent (conjugate) (Pneumo 10) is included in the National Immunization Program in the child's vaccination schedule. Vaccination coverage in Brazil and in many countries developing is still low, which contributes to the high infant mortality rate. In, improving primary health is crucial for the early detection and treatment appropriate of pneumonia. However, many health systems, even in developing countries, face weaknesses in primary care, such as a lack of infrastructure, insufficient human resources and limited access to essential medicines. (BUENO,2020)

FINAL CONSIDERATIONS

This article has shown the main causes of bacterial pneumonia, caused by the bacterium *Streptococcus pneumoniae*, as well as the importance of early care in PHC in Brazil. It was shown that this is a serious respiratory disease that is prevalent during periods of low temperatures.

It has been shown that inadequate or late treatment can result in serious complications, including the need for hospitalization and death. Despite the seriousness of the disease, there are accessible prevention and treatment measures offered by the SUS, such as vaccination, which significantly reduces hospitalization and mortality rates associated with bacterial pneumonia, and hydration, especially in is essential. winter, this highlights the ongoing need for integrated strategiesvaccination, improved socio--economic conditions increased access to health services in order to reduce infant mortality from andpneumonia in Brazil. PHC is essential in health education about the prevention, early diagnosis and effective management of bacterial, with pneumoniathe aim of reducing hospital and serious complications.admissions

It is crucial to consider that social inequalities, especially in terms of income and education, significantly influence access to servicesadequate health, which can exacerbate the impact of bacterial pneumonia on vulnerable populations. Health systems face challenges such as lack of infrastructure, resources limited human and restricted access to essential medicines, especially in states with higher levels of poverty. The problem of childhood pneumonia is complex, highlighting the need for comprehensive and affordable interventions to combat this disease globally.

It is believed that the study has contributed to raising awareness of public the importance of public policies that promote equitable access to preventive and curative health care, such as vaccination, and the promotion improvements in PHC for the early detection and appropriate treatment of pneumonia.

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