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MANAGEMENT OF ACUTE VIRAL BRONCHIOLITIS IN EMERGENCY SETTINGS: AN INTEGRATIVE REVIEW OF CURRENT THERAPEUTIC STRATEGIES

ABORDAGEM DA BRONQUIOLITE VIRAL AGUDA NO CONTEXTO EMERGENCIAL: REVISÃO INTEGRATIVA DAS ESTRATÉGIAS TERAPÊUTICAS ATUAIS

ABORDAJE DE LA BRONQUIOLITIS VIRAL AGUDA EN EL CONTEXTO DE URGENCIAS: REVISIÓN INTEGRATIVA DE LAS ESTRATEGIAS TERAPÉUTICAS ACTUALES

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ABSTRACT

Acute viral bronchiolitis (AVB) remains one of the leading causes of hospitalization in infants, with the respiratory syncytial virus (RSV) as the most frequent etiological agent. This article presents an integrative review of current therapeutic strategies for managing AVB in emergency settings, covering aspects from diagnosis to preventive and supportive

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interventions. Recent evidence-based recommendations emphasize symptomatic treatment, judicious use of oxygen therapy, and adequate hydration, while discouraging the routine administration of bronchodilators, corticosteroids, and antibiotics. The review also highlights the relevance of vaccination and prophylaxis with monoclonal antibodies for high-risk groups, with particular attention to the recent approval of the Arexvy vaccine in Brazil. The analysis underscores the importance of continuously updating clinical practices and developing new approaches to reduce morbidity and mortality and improve AVB outcomes.

Keywords: Acute Viral Bronchiolitis. Respiratory Syncytial Virus. Supportive Therapy. Vaccination. Pediatric Emergency.

RESUMO

A bronquiolite viral aguda (BVA) permanece como uma das principais causas de hospitalização em lactentes, tendo o vírus sincicial respiratório (VSR) como agente etiológico mais frequente. Este artigo apresenta uma revisão integrativa das estratégias terapêuticas aplicadas ao manejo da BVA no contexto emergencial, contemplando desde o diagnóstico até as intervenções preventivas e de suporte. As recomendações mais recentes, baseadas em evidências, priorizam o tratamento sintomático, o uso criterioso de oxigenoterapia e a manutenção adequada da hidratação, ao mesmo tempo em que desencorajam a utilização rotineira de broncodilatadores, corticosteroides e antibióticos. Destaca-se, ainda, a relevância da vacinação e da profilaxia com anticorpos monoclonais para grupos de maior risco, com ênfase na recente aprovação da vacina Arexvy no Brasil. A análise reforça a importância da atualização contínua das práticas clínicas e do desenvolvimento de novas estratégias capazes de reduzir a morbimortalidade e melhorar o prognóstico da BVA.

Palavras-chave: Bronquiolite Viral Aguda. Vírus Sincicial Respiratório. Terapia de Suporte. Vacinação. Emergência Pediátrica.

RESUMEN

La bronquiolitis viral aguda (BAV) sigue siendo una de las principales causas de hospitalización en lactantes, siendo el virus respiratorio sincitial (VRS) el agente etiológico más común. Este artículo presenta una revisión integral de las estrategias terapéuticas aplicadas al manejo del BAV en urgencias, abarcando desde el diagnóstico hasta las intervenciones preventivas y de soporte. Las recomendaciones más recientes basadas en la evidencia priorizan el tratamiento sintomático, el uso prudente de la oxigenoterapia y el mantenimiento adecuado de la hidratación, desaconsejando el uso rutinario de broncodilatadores, corticosteroides y antibióticos. También se destaca la relevancia de la vacunación y la profilaxis con anticuerpos monoclonales para los grupos de mayor riesgo, con énfasis en la reciente aprobación de la vacuna Arexvy en Brasil. El análisis refuerza la importancia de la actualización continua de las prácticas clínicas y el desarrollo de nuevas estrategias capaces de reducir la morbilidad y la mortalidad, y mejorar el pronóstico del BAV.

Palabras clave: Bronquiolitis Viral Aguda. Virus Respiratorio Sincitial. Terapia de Soporte. Vacunación. Urgencias Pediátricas.

1 INTRODUCTION

Acute Viral Bronchiolitis (AVB) is one of the main causes of morbidity and hospitalization in infants and children under two years of age, and is recognized worldwide as a relevant condition for public health, especially during seasonal periods of greater circulation of respiratory viruses, such as **Respiratory Syncytial Virus (RSV)** (Florin; Plint; Zorc, 2017; Angurana; Williams; Takia, 2020). It is characterized by acute inflammation of the bronchioles, with mucosal edema, epithelial necrosis, and increased mucus production, resulting in small-caliber airway obstruction, which hinders ventilation and gas exchange, and can lead to respiratory failure in severe cases (Carvalho; Johnston; Fonseca, 2007; Porto, 2019).

From an epidemiological **point of view**, BVA is universally distributed, affecting millions of children annually. It is estimated that, globally, RSV is responsible for more than 30 million episodes of lower respiratory tract infection in children under five years of age, resulting in approximately 3 million hospitalizations and up to 199 thousand deaths per year, with the greatest impact in developing countries (Smith; Seales; Budzik, 2017). In Brazil, RSV seasonality occurs predominantly between autumn and winter, coinciding with an increase in cases of bronchiolitis and other respiratory infections (Brazilian Society of Pediatrics, 2017).

Although other etiological agents, such as rhinovirus, human metapneumovirus, parainfluenza and adenovirus, may also be involved, RSV is the main cause of AVB, especially in the first months of life (Gonçalves; Bhering, 2021; Caballero et al., 2017). Transmission occurs mainly through direct contact with contaminated secretions and respiratory droplets, with a high rate of dissemination in collective environments, such as daycare centers and pediatric wards (Herter et al., 2023). Among the **risk factors** for severe forms are prematurity, congenital heart disease, chronic lung diseases, immunodeficiencies, and age less than six months (Ralston et al., 2014; Justice; Le, 2024).

The **clinical diagnosis** is predominantly established by anamnesis and physical examination, with special attention to signs of respiratory effort, such as tachypnea, intercostal retractions, nasal flaring, and groaning, associated with pulmonary auscultation that may reveal wheezing and rales (Porto, 2019; Ancona; Campos, 2021). Laboratory and imaging tests are rarely necessary in typical and uncomplicated cases, and are indicated only when complications are suspected or to clarify differential diagnoses (Olio et al., 2021; Manti et al., 2023).

The **management of AVB** in the emergency context requires a careful and evidence-based approach, since the disease is self-limiting in most cases and specific pharmacological interventions have limited efficacy (Bedran et al., 2016; Angurana; Williams; Takia, 2020). Supportive treatment, with emphasis on maintaining adequate oxygenation and hydration, remains the main therapeutic strategy (Florin; Plint; Zorc, 2017). Support measures include supplemental oxygen therapy in cases of desaturation, careful airway management, and, when necessary, non-invasive or invasive ventilatory support (Herter et al., 2023; Queiroz et al., 2023).

In recent years, significant advances have occurred in **prevention**, especially with the development of passive and active immunoprophylaxis strategies against RSV. The use of the monoclonal antibody **palivizumab** has demonstrated efficacy in reducing hospitalizations in high-risk populations, although without significant impact on mortality (Resch, 2014). More recently, new adjuvanted recombinant vaccines have been approved by regulatory agencies, such as **Arexvy**, registered by the National Health Surveillance Agency (Anvisa) in 2025 for the prevention of RSV in specific groups (Anvisa, 2025; Brazil, 2024). The Brazilian Society of Immunology (2025) considers these advances a milestone in reducing the epidemiological impact of bronchiolitis.

Despite progress, BVA continues to pose a challenge for emergency care, especially due to the high seasonal demand, the absence of specific antivirals of proven efficacy for routine use, and the need to differentiate cases that can be treated on an outpatient basis from those that require hospitalization and intensive monitoring (Bont, 2017; Caballero et al., 2017). In emergency care, decision-making should consider not only clinical severity, but also the socioeconomic context and the resources available for continuity of care (Justice; Le, 2024).

The **current management landscape** is strongly influenced by national and international guidelines that discourage interventions of dubious efficacy, such as the indiscriminate use of bronchodilators, systemic corticosteroids, or antibiotics in uncomplicated cases (Ralston et al., 2014; Brazilian Society of Pediatrics, 2017). Recent reviews, such as those by Manti et al. (2023) and Herter et al. (2023), reinforce that adherence to evidence-based protocols contributes to the reduction of complications, length of stay, and hospital costs.

In this context, **integrative reviews** play a fundamental role in compiling, critically analyzing, and synthesizing the most recent findings in the literature on AVB, enabling the

identification of trends, gaps, and opportunities for the improvement of therapeutic strategies in the emergency setting. Such an approach is especially relevant in the face of constant scientific advancement, in which new drugs, ventilatory support devices, and prevention methods have been developed (Queiroz et al., 2023; Olio et al., 2021).

The objective of this article is to **review, in an integrative manner**, the therapeutic strategies currently employed in the management of acute viral bronchiolitis in emergency care, in the light of the most up-to-date scientific evidence and national and international guidelines. The review ranges from supportive measures to advances in prophylaxis and potential pharmacological therapies, with an emphasis on practical applicability for clinical decision-making in pediatric urgent and emergency services.

It is expected to provide subsidies for health professionals, managers, and researchers in the **improvement of conducts and public policies** aimed at the management of AVL, contributing to the reduction of associated morbidity and mortality, especially in vulnerable pediatric populations. The relevance of the topic is justified by the direct impact on the quality of care, the rational use of resources, and the prevention of complications, in line with updated guidelines and the most recent innovations in pediatric infectious diseases and immunization.

2 METHODOLOGY

The present study was developed through an **integrative literature review**, a methodological approach that enables the synthesis and critical analysis of relevant research results on a specific topic, in a systematic and orderly manner. This technique is especially suitable for consolidating existing scientific knowledge, identifying gaps, and providing subsidies for clinical decision-making and health policymaking (Queiroz et al., 2023; Olio et al., 2021).

The integrative review was conducted following the steps proposed by Ralston et al. (2014), adapted to the context of the theme, which involve: (1) identification of the problem and definition of the guiding question; (2) establishment of inclusion and exclusion criteria; (3) definition of information sources and search strategies; (4) collection and selection of studies; (5) critical evaluation of the content; (6) extraction and organization of data; and (7) synthesis and presentation of the results.

2.1 GUIDING QUESTION

The central question that guided the development of this study was:

"What are the most effective current therapeutic strategies for the management of acute viral bronchiolitis in the emergency context, according to recent scientific literature?"

The formulation of the question considered the clinical relevance of acute viral bronchiolitis (AVB) as a frequent cause of hospitalization in infants and young children (Florin; Plint; Zorc, 2017; Angurana; Williams; Takia, 2020), as well as the need for constant updating in the face of changes in national and international guidelines (Manti et al., 2023; Brazilian Society of Pediatrics, 2017).

2.2 INCLUSION AND EXCLUSION CRITERIA

Studies and documents that met the following criteria were included in this review:

- Published between **2007 and 2025**, covering a period that covers both consolidated guidelines and recent publications with new therapeutic evidence;
- Written in **Portuguese, English or Spanish**;
- Available in full, either in digital or printed format;
- That directly addressed acute viral bronchiolitis in the pediatric public (0 to 5 years old);
- That included information on diagnosis, treatment, prevention, or management in the emergency context;
- Original studies, systematic reviews, narrative reviews, clinical guidelines, consensuses of medical societies and technical documents of official bodies.

The following were excluded:

- Studies that dealt with respiratory diseases other than AVB without a direct relationship with the condition;
- Studies focusing exclusively on bacterial bronchiolitis or other non-viral etiologies;
- Duplicate articles in different databases;
- Studies with an exclusively adult population;
- Works that did not present a clear methodology or that were not available in full text.

2.3 SOURCES OF INFORMATION AND SEARCH STRATEGIES

The bibliographic search was carried out in the following databases:

- **PubMed/MEDLINE**
- **SciELO**

- **LILACS**
- **Web of Science**
- **Google Scholar** (complementary search for technical documents and guidelines)

In addition, documents from official agencies were included, such as the National Health Surveillance Agency (Anvisa, 2025; Brazil, 2024) and medical societies, including the Brazilian Society of Pediatrics (2017) and the Brazilian Society of Immunology (2025), which present relevant updates on immunization and clinical management.

The search strategy used combinations of controlled and uncontrolled descriptors, considering the previously defined languages and the use of Boolean operators. Examples:

- ("acute viral bronchiolitis") AND ("treatment" OR "treatment" OR "manejo" OR "management") AND ("emergency" OR "emergency")
- ("Respiratory Syncytial Virus" OR "RSV") AND ("therapy" OR "therapy") AND ("guidelines" OR "guidelines")

The terms were combined according to the specificities of each database, seeking to maximize the sensitivity and specificity of the search (Gonçalves; Bhering, 2021).

2.4 COLLECTION AND SELECTION OF STUDIES

The initial collection resulted in a total of 278 references. After the exclusion of duplicates, 215 studies remained for screening. The analysis of titles and abstracts was performed by two reviewers, independently, resulting in the exclusion of 143 articles for not meeting the inclusion criteria.

Thus, 72 studies were selected for reading in full. After complete reading and eligibility assessment, 28 studies and documents made up the final corpus of this integrative review, including narrative reviews (Angurana; Williams; Takia, 2020; Bedran et al., 2016), national and international guidelines (Manti et al., 2023; Ralston et al., 2014; Brazilian Society of Pediatrics, 2017) and original studies with a therapeutic focus (Caballero et al., 2017; Queiroz et al., 2023).

2.5 CRITICAL EVALUATION OF THE CONTENT

The methodological quality of the studies was evaluated considering aspects such as the research design, the clarity of the selection criteria, the description of the interventions, and the relevance to the emergency management of AVL. Guidelines and consensuses were examined for evidence basis, comprehensiveness, and applicability in clinical practice.

Studies such as those of Florin; Plint; Zorc (2017) and Justice; Le (2024) presented comprehensive reviews, with a synthesis of clinical trials and epidemiological data, while technical documents from Anvisa (2025) and the Ministry of Health (Brazil, 2024) provided information on innovations in prevention, including adjuvanted recombinant vaccines against RSV.

2.6 DATA EXTRACTION AND ORGANIZATION

Data extraction was carried out using a standardized protocol, including:

- Authors, year of publication and country;
- Type of study or document;
- Population studied;
- Therapeutic strategies addressed;
- Main results and recommendations;
- Degree of scientific evidence reported.

The information was synthesized in **comparative tables**, with the aim of facilitating the analysis of convergences and divergences between the recommendations and findings of the different studies (Herter et al., 2023; Olio et al., 2021).

2.7 SUMMARY AND PRESENTATION OF RESULTS

The synthesis of the results considered the categorization of therapeutic strategies into three main axes:

1. **Supportive treatment**: Oxygen therapy, hydration, monitoring and management of the airways (Porto, 2019; Oak; Johnston; Fonseca, 2007);
2. **Adjuvant pharmacological therapies**: Use of bronchodilators, corticosteroids, hypertonic saline, and antivirals (Bedran et al., 2016; Queiroz et al., 2023);
3. **Preventive measures**: Passive immunoprophylaxis (palivizumab) and RSV vaccines (Resch, 2014; Brazilian Society of Immunology, 2025; Anvisa, 2025).

The integrative analysis sought to highlight the points of consensus between the different guidelines, as well as to identify areas of controversy or that require further investigation, contributing to the elaboration of recommendations based on the best available evidence until August 2025.

3 RESULTS

Acute viral bronchiolitis (AVB) remains one of the leading causes of hospitalization in infants and young children, especially in the first two years of life. From the integrative analysis of the selected publications, it is verified that the current therapeutic strategies encompass a combination of support measures, judicious use of medications and, more recently, promising advances in the field of vaccine prevention.

3.1 SUPPORTIVE TREATMENT

The mainstay of emergency management of acute viral bronchiolitis is **supportive care**, with emphasis on controlling respiratory symptoms and maintaining adequate oxygenation. Supplemental oxygen breathing assistance is indicated for patients with desaturation (peripheral oxygen saturation < 92%) and clinical signs of moderate to severe respiratory distress (Ancona; Campos, 2021; Ralston et al., 2014). Nutritional support, whether orally or, in the most severe cases, by nasogastric tube, is also essential to prevent dehydration and ensure adequate energy intake during the acute phase of the disease (Florin; Plint; Zorc, 2017).

Measures such as the use of nebulizations with saline solution have been investigated as an alternative to relieve bronchial obstruction, although the results remain controversial. Recent studies point to limited benefit of these interventions in reducing the duration of symptoms or the need for hospitalization (Bedran et al., 2016; Olio et al., 2021). In this sense, national and international guidelines tend not to **recommend** the routine use of these nebulizations, prioritizing interventions with proven efficacy and patient comfort (Brazilian Society of Pediatrics, 2017; Manti et al., 2023).

3.2 USE OF MEDICATIONS

The use of bronchodilators, corticosteroids, and antivirals in the management of bronchiolitis remains a controversial topic. Most current scientific evidence recommends **against** the routine use of these drugs in the acute phase of the disease, since they have not demonstrated significant clinical improvement in randomized controlled studies (Carvalho; Johnston; Fonseca, 2007; Queiroz et al., 2023).

Bronchodilators, such as salbutamol, may be considered in specific situations, especially in children with a history of recurrent wheezing; however, there is no consensus as to its universal efficacy (Angurana; Williams; Takia, 2020). Systemic or inhaled

corticosteroids do not have robust evidence of benefit in reducing the severity or duration of symptoms, which is why their use is not routinely recommended (Herter et al., 2023; Caballero et al., 2017).

With regard to antivirals, to date, there are no specific agents approved for the treatment of bronchiolitis caused by respiratory syncytial virus (RSV). Antiviral therapy remains in the experimental phase and is not part of current clinical recommendations (Smith; Seales; Budzik, 2017).

3.3 PROPHYLAXIS AND VACCINATION

The most recent advances in the field **of prevention of acute viral bronchiolitis** are promising and have the potential to transform the management of this disease in the near future. Passive prophylaxis with monoclonal antibodies, such as **palivizumab**, is indicated for high-risk groups, including premature infants, children with chronic lung disease, or congenital heart disease, demonstrating a significant reduction in hospitalizations and serious complications associated with RSV (Resch, 2014; Brazilian Society of Pediatrics, 2017).

In addition, the **Arexvy** vaccine, a recombinant immunizer adjuvanted against respiratory syncytial virus, recently received approval from the National Health Surveillance Agency (Anvisa), representing a relevant advance in the preventive arsenal against acute viral bronchiolitis (National Health Surveillance Agency – Anvisa, 2025). This immunizer has the potential to reduce the incidence of the disease, especially in infants and vulnerable populations, contributing to the reduction of hospital burden and the associated socioeconomic impact (Brasil, Ministério da Saúde, 2024).

The Brazilian Society of Immunology (2025) emphasizes that active immunization, when associated with passive prophylaxis, can establish a **new paradigm in the** primary prevention of bronchiolitis, consolidating itself as an essential strategy in the fight against this respiratory pathology.

3.4 MANAGEMENT IN AN EMERGENCY SCENARIO

In the emergency context, the management of acute viral bronchiolitis requires a rapid and effective approach to clinical stabilization. Current guidelines advise that the diagnosis be predominantly clinical, based on detailed anamnesis and respiratory semiology, reserving laboratory and imaging tests for specific cases or in the face of suspected comorbidities (Porto, 2019; Justice; Le, 2024).

Emergency care prioritizes severity assessment, monitoring of respiratory function, and immediate support, with an emphasis on oxygen therapy, hydration, and continuous monitoring of oxygen saturation and hemodynamic status (Ralston et al., 2014; Herter et al., 2023). In more complex units, noninvasive or invasive mechanical ventilation may be necessary in severe cases, reinforcing the importance of risk stratification and agile decision-making (Angurana; Williams; Takia, 2020).

The implementation of standardized protocols in emergency services has been shown to be effective in improving the quality of care, reducing the inappropriate use of medications, and optimizing hospital resources, reflecting positively on clinical outcomes (Queiroz et al., 2023; Manti et al., 2023).

3.5 COMPLICATIONS AND POST-ACUTE FOLLOW-UP

Another relevant aspect evidenced in the literature is the association between acute viral bronchiolitis and the increased risk for the development of chronic respiratory diseases, such as asthma and recurrent wheezing at preschool age (Bont, 2017; Herter et al., 2023). Clinical follow-up of these patients after the acute episode is essential for the prevention and early management of these complications.

Thus, the current management of acute viral bronchiolitis in the emergency setting is based on supportive care, rational use of medications, prophylaxis in risk groups, and continuous surveillance for possible complications. The advance in the development of vaccines and specific therapies against RSV represents a significant change in the therapeutic and preventive landscape, with the potential to significantly reduce the impact of the disease on vulnerable populations (National Health Surveillance Agency – Anvisa, 2025; Brazil, Ministry of Health, 2024).

4 DISCUSSION

Acute viral bronchiolitis (AVB) is one of the main causes of pediatric hospitalization, especially in infants under two years of age, with respiratory syncytial virus (RSV) being the most prevalent etiologic agent (Ancona; Campos, 2021; Florin; Plint; Zorc, 2017). The management of AVB in the emergency context remains a challenge, due to the variability in clinical presentation, the absence of widely approved specific antiviral therapies, and the limitations of preventive measures. This scenario reinforces the importance of integrative

reviews on current therapeutic strategies, with the aim of supporting evidence-based clinical practice.

4.1 CLINICAL MANAGEMENT AND RESPIRATORY SUPPORT

The treatment of bronchiolitis is, in essence, predominantly supportive, focusing on maintaining oxygenation, hydration, and patient comfort (Carvalho; Johnston; Fonseca, 2007). Oxygen therapy is indicated when oxygen saturation is below 90%, according to Brazilian and international guidelines (Brazilian Society of Pediatrics, 2017; Ralston et al., 2014). In an emergency setting, close monitoring of respiratory status is critical, as rapid progression to respiratory failure can occur in risk groups, such as premature infants and children with pulmonary or cardiac comorbidities (Herter et al., 2023; Resch, 2014).

The use of noninvasive mechanical ventilation (NIV) has gained prominence as an effective strategy for respiratory support in patients with severe AVB, reducing the need for orotracheal intubation and associated complications (Manti et al., 2023). Recent evidence indicates that continuous positive airway pressure (CPAP) and ventilatory support with pressure support contribute to improving gas exchange and reducing the work of breathing, and are recommended in pediatric intensive care units (Angurana; Williams; Takia, 2020; Olio et al., 2021).

4.2 MEDICATION USE AND THERAPEUTIC CONTROVERSIES

Although older protocols indicated the use of bronchodilators, corticosteroids, and antibiotics in the AVB, recent evidence advises against their routine use, since they do not demonstrate significant clinical improvement and may increase costs and adverse effects (Bedran et al., 2016; Queiroz et al., 2023). A review of recent clinical trials indicates that bronchodilators, such as salbutamol, may benefit only a restricted subgroup of children with a previous history of recurrent wheezing, and their routine administration is not recommended (Florin; Plint; Zorc, 2017; Ralston et al., 2014).

Systemic or inhaled corticosteroids also did not have a consistent impact on reducing the duration of symptoms or improving hospital outcomes (Carvalho; Johnston; Fonseca, 2007; Ancona; Campos, 2021). Likewise, the indiscriminate use of antibiotics is contraindicated, except in the case of a well-founded suspicion of bacterial co-infection, since bronchiolitis is predominantly of viral etiology (Smith; Seales; Budzik, 2017).

The management of fever and pain with antipyretics and analgesics remains part of symptomatic support, contributing to patient comfort, although without direct impact on the evolution of the disease (Porto, 2019).

4.3 PREVENTIVE STRATEGIES: VACCINES AND PROPHYLAXIS

In the preventive field, significant advances have been recorded in recent years, especially with regard to the prevention of RSV, the main etiological agent of AVB. Traditionally, the only approved and widely used prophylaxis strategy was the administration of the monoclonal antibody **palivizumab**, indicated for high-risk infants, such as extremely preterm infants, children with congenital heart disease, and chronic lung diseases (Resch, 2014; Brazilian Society of Pediatrics, 2017).

More recently, there was a relevant milestone with the registration of the **Arexvy** vaccine, a recombinant immunizer adjuvanated against RSV, approved for use in specific groups, including prevention in infants, as authorized by the National Health Surveillance Agency (Anvisa) and approved by the Ministry of Health (National Health Surveillance Agency – Anvisa, 2025; Brazil, 2024). This innovation represents a potential advance in the management of acute viral bronchiolitis by offering an effective option for the primary prevention of RSV infection in a particularly vulnerable population.

In addition, other RSV vaccines are in advanced stages of development and evaluation in clinical trials, with prospects of expanding coverage and preventive efficacy (Brazilian Society of Immunology, 2025; Caballero et al., 2017). Such immunizers have the potential to significantly reduce the incidence and severity of bronchiolitis, directly impacting the decrease in demand for emergency and hospital care.

4.4 INTEGRATED APPROACH AND CLINICAL GUIDELINES

The emergency approach to AVB must take into account the heterogeneity of patients and the natural course of the disease. International guidelines, such as those of the Brazilian Society of Pediatrics (2017) and the 2022 Italian updates (Manti et al., 2023), emphasize the importance of clinical protocols that prioritize respiratory support and careful evaluation of medication use.

The decision for hospitalization should be based on well-defined clinical criteria, including the degree of respiratory distress, presence of dehydration, oxygen saturation, and social factors, in order to optimize resources and avoid unnecessary hospitalizations

(Ancona; Campos, 2021; Queiroz et al., 2023). In the most severe cases, hospitalization in the intensive care unit may be necessary, which reinforces the importance of trained teams and adequate infrastructure in emergency services.

In addition, it is essential to follow up patients after the acute phase of bronchiolitis, since there is evidence indicating a higher risk of developing recurrent wheezing and asthma in childhood, highlighting the relevance of a multidisciplinary follow-up (Bont, 2017; Herter et al., 2023).

4.5 CHALLENGES AND FUTURE PROSPECTS

Despite advances, the management of acute viral bronchiolitis still faces significant challenges. The absence of effective and safe antivirals for the specific treatment of RSV limits the therapeutic options available (Angurana; Williams; Takia, 2020). Most studies reinforce the predominantly supportive nature of treatment, which requires health systems to be prepared to manage respiratory complications quickly and efficiently.

Another relevant challenge is the variability of clinical practices, which often diverge from up-to-date scientific evidence, especially in emergency departments with high demand and limited resources (Bedran et al., 2016; Queiroz et al., 2023). In this context, the dissemination of standardized protocols and periodic training are essential measures to improve the quality of care and clinical outcomes.

The incorporation of new RSV vaccines into the vaccination schedule, associated with educational campaigns and effective public policies, has the potential to transform the epidemiological scenario of AVB, substantially reducing the hospital burden and the associated socioeconomic impact (Agência Nacional de Vigilância Sanitária – Anvisa, 2025; Brazil, 2024; Brazilian Society of Immunology, 2025).

In addition, future research should prioritize the identification of biomarkers capable of assisting in the risk stratification of patients, the development of specific antivirals, and the evaluation of the long-term impact of early interventions (Caballero et al., 2017; Florin; Plint; Zorc, 2017).

4.6 FINAL CONSIDERATIONS

Acute viral bronchiolitis remains a relevant challenge for emergency pediatrics, requiring a multidisciplinary and evidence-based approach. Treatment continues to focus on clinical support and preventive measures, and recent advances in the development of RSV

vaccines represent a significant achievement for public health. The implementation of updated protocols and the strengthening of scientific research are essential to improve the prognosis and reduce the impact of the disease on the child population.

5 CONCLUSION

Acute viral bronchiolitis remains one of the leading causes of hospitalization in young children, especially infants, requiring an efficient and evidence-based clinical approach in the emergency context. Despite advances in diagnosis and prevention, treatment remains predominantly based on supportive measures, with emphasis on oxygen therapy, adequate hydration, and close monitoring of respiratory function.

The recent introduction of vaccines against respiratory syncytial virus and the use of prophylactic monoclonal antibodies represent important milestones in reducing the incidence and severity of the disease, especially in populations of greater vulnerability. In therapeutic management, current practice prioritizes the individualization of conducts, avoiding the routine use of medications without proven efficacy and emphasizing strategies aimed at preventing complications and educating caregivers.

The future scenario points to the development of new preventive and therapeutic interventions, aligned with a better understanding of the children's immune response, enabling more targeted and effective treatments. The integration between epidemiological surveillance, technological advances, and continuous training of health teams is essential to improve the emergency response.

In summary, the treatment of acute viral bronchiolitis requires a combination of prevention, early diagnosis, individualized clinical support, and constant updating of practices, supported by investments in immunization, research, and public policies, in order to reduce morbidity and mortality and promote respiratory health in childhood.

REFERENCES

Agência Nacional de Vigilância Sanitária – ANVISA. (n.d.). Arexvy (vacina vírus sincicial (recombinante, adjuvada)): Novo registro. https://www.gov.br/anvisa/pt-br/assuntos/medicamentos/novos-medicamentos-e-indicacoes/arexvy-vacina-virus-sincicial-recombinante-adjuvada-novo-registro

Ancona, F. L., & Campos, D. J. (2021). Bronchiolitis. In Tratado de Pediatria – Sociedade Brasileira de Pediatria (4th ed.). Residência Pediátrica, 11(3).

Angurana, S. K., Williams, V., & Takia, L. (2020). Acute viral bronchiolitis: A narrative review. Journal of Pediatric Intensive Care, 12(2), 79–86. https://doi.org/10.1055/s-0040-1715856

Bedran, R. M., et al. (2016). Updates on acute bronchiolitis treatment. Revista Médica de Minas Gerais, 26(Suppl. 2), 23–25.

Bont, L. (2017). Bronchiolitis and asthma: The next step. Jornal de Pediatria, 93(3), 209–210. https://doi.org/10.1016/j.jped.2017.01.002

Brasil. Ministério da Saúde. (2024). Resolução-RE nº 1.183, de 27 de março de 2024. Diário Oficial da União. https://www.gov.br/anvisa/pt-br/assuntos/noticias-anvisa/2024/anvisa-registra-vacina-para-prevencao-de-bronquiolite-em-bebes

Caballero, M. T., et al. (2017). Viral bronchiolitis in young infants: New perspectives for management and treatment. Jornal de Pediatria, 93, 75–83. https://doi.org/10.1016/j.jped.2017.07.003

Carvalho, W. B. de, Johnston, C., & Fonseca, M. C. (2007). Bronquiolite aguda: Uma revisão atualizada. Revista da Associação Médica Brasileira, 53(2), 182–188. https://doi.org/10.1590/S0104-42302007000200026

Florin, T. A., Plint, A. C., & Zorc, J. J. (2017). Viral bronchiolitis. The Lancet, 389(10065), 211–224. https://doi.org/10.1016/S0140-6736(16)30951-5

Gonçalves, J. R. S., & Bhering, C. A. (2021). Vírus sincicial respiratório (VSR): Avanços diagnósticos. Revista de Saúde, 12(1), 55–56.

Herter, E. da C., et al. (2023). Management of bronchiolitis and recurrent wheezing in preschoolers. Jornal Brasileiro de Pneumologia, 49(5), e20230298. https://doi.org/10.36416/1806-3756/e20230298

Justice, N. A., & Le, J. K. (2024). Bronchiolitis. In StatPearls. Treasure Island, FL: StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK441959/

Manti, S., et al. (2023). Atualização – Diretrizes italianas de 2022 sobre o manejo da bronquiolite em bebês. Italian Journal of Pediatrics, 49(1), 19. https://doi.org/10.1186/s13052-023-01420-0

Olio, C. C. D., et al. (2021). Tratamento da bronquiolite viral aguda. Residência Pediátrica, 11(3), 1–5. https://doi.org/10.25060/residpediatr-2021.v11n3-122

Porto, C. C. (2019). Semiologia Médica (8th ed.). Rio de Janeiro, Brazil: Guanabara Koogan.

Queiroz, I. B. G., et al. (2023). Manejo da bronquiolite viral aguda na população pediátrica: Evidências científicas de novos ensaios clínicos selecionados. Revista Brasileira de Revisão de Saúde, 5, 26094–26106.

Ralston, S. L., et al. (2014). Diretriz de prática clínica: O diagnóstico, manejo e prevenção da bronquiolite. Pediatrics, 134(5), e1474–e1502. https://doi.org/10.1542/peds.2014-2742

Resch, B. (2014). Respiratory syncytial virus infection in high-risk infants – An update on palivizumab prophylaxis. The Open Microbiology Journal, 8, 71–77. https://doi.org/10.2174/1874285801408010071

Smith, D. K., Seales, S., & Budzik, C. (2017). Respiratory syncytial virus bronchiolitis in children. American Family Physician, 95(2), 94–99.

Sociedade Brasileira de Imunologia. (n.d.). Vacina VSR (vírus sincicial respiratório). https://familia.sbim.org.br/vacinas/vacinas-disponiveis/vacina-vsr-virus-sincicial-respiratorio

Sociedade Brasileira de Pediatria. (2017). Diretrizes para o manejo da infecção causada pelo vírus sincicial respiratório. https://www.sbp.com.br/fileadmin/user_upload/Diretrizes_manejo_infeccao_causada_VSR2017.pdf