

ACUTE VIRAL BRONCHIOLITIS: TREATMENT AND IMMUNOPROPHYLAXIS WITH MONOCLONAL ANTIBODIES

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Abstract: Goal: In this review we aim to bring a little more about the therapeutic vision of acute viral bronchiolitis and the use of new therapies with monoclonal antibodies. **Methods:** An integrative review was carried out, using as criteria the search in the National Library of Medicine (PubMed) and Scientific Electronic Library Online (SciELO) databases using the descriptors (i) Acute viral bronchiolitis (ii) monoclonal antibodies, (iii) immunoprophylaxis, with the Boolean operator “AND”. Studies published from 2019 to 2024 were included. **Results:** With the results that the therapy carried out for acute viral bronchiolitis is still under construction as we do not yet have specific therapies, however there are great future perspectives regarding the use of monoclonal antibodies such as Palivizumab.

Keywords: Acute viral bronchiolitis, monoclonal antibodies and immunoprophylaxis.

INTRODUCTION

Acute viral bronchiolitis is considered a clinical syndrome associated with respiratory distress in children under two years of age. It begins with the emergence of upper respiratory symptoms such as rhinorrhea that later evolve with the emergence of a lower airway respiratory condition with the appearance of wheezing, with respiratory syncytial virus as its main etiology (RODRIGUEZ et al.,2020).

Being a major cause of hospitalizations in babies and children under 2 years of age, it is more common in the autumn to winter seasons, where hospitalization rates for bronchiolitis reach their maximum between two and six months of age, being one of the most common acute respiratory diseases in childhood (FRANCISCO et al.,2023).

During the covid-19 pandemic, where the use of masks, social isolation, hand hygiene and more intense control of the transmission

of respiratory infections was carried out, a substantial reduction in the circulation of the respiratory syncytial virus was noticed, which reflected in the reduction in the number of cases of acute viral bronchiolitis caused by RSV, which at that time began to be caused by other viruses. However, in subsequent years there was a spike in infection by RSV and other viruses such as rhinovirus, parainfluenza 3 and human metapneumovirus (FLORES PÉREZ et al., 2021).

Leading to classic cases of bronchiolitis where viruses infect the terminal bronchiolar epithelial cells causing direct damage to the bronchi and bronchioles with the formation of edema, excessive mucus that lead to obstruction of the airway, with RSV being the major causal agent, we know that it is It presents ubiquitously throughout the world, causing seasonal outbreaks. In temperate climates, bronchiolitis epidemics occur in late autumn and winter and are generally linked to it. In tropical and subtropical climates, seasonal outbreaks are associated with the rainy season (BAQUEDANO et al., 2020).

Considering the importance of the topic due to its large number of cases and which consequently end in hospital admissions, in this article we see the need to address more exhaustively the therapeutic and prophylactic measures for acute viral bronchiolitis (BUSTOS et al.,2019).

REVISION

CLINICAL PRESENTATION

Acute viral bronchiolitis is a syndrome that leads to respiratory discomfort occurring in children under 2 years of age who present with fever, cough, respiratory discomfort and wheezing that is generally preceded by a condition with symptoms similar to the common cold, which later begins the classic clinical course, where respiratory discomfort

leads to an increase in respiratory frequency, the duration of these manifestations varies, with an average peak of around five days (SÁNCHEZ et al.,2023).

In the vast majority of children under two years of age, bronchiolitis resolves spontaneously without further complications, but in children with risk factors such as: Prematurity (gestational age < 36 weeks), low birth weight, children under 12 weeks, the presence of bronchopulmonary dysplasia, immunodeficiencies, anatomical defects of the airways, congenital heart disease and neurological diseases increases the chances of developing serious illness and the occurrence of complications (MARTÍNEZ et al.,2020).

Among the complications we have dehydration as children with bronchiolitis have a reduction in water intake during the period of infection, in addition to an increase in insensible losses, due to mechanisms such as fever and tachypnea, which must be monitored and appropriate correction carried out for this. complication, another complication that may occur is apnea, which is a major risk factor for the development of acute respiratory failure (MANUEL et al.,2021).

Acute respiratory failure occurs in around 5-10% of children with bronchiolitis and of these, around 1-2% require advanced respiratory support. In addition to increasing the risk of secondary bacterial pneumonia infection, which generates an increased need for admission to intensive care units and the use of antibiotics. (DAVID et al.,2023).

COMPLEMENTARY EXAMS

For the vast majority of cases of acute viral bronchitis there is no need to request tests, as requesting them will not alter medical management and may lead to the inadvertent use of antibiotics. use radiography or if there is a need to rule out differential diagnoses (CONDE et al.,2020).

The radiological characteristics are very non-specific and vary from hyperinflation to atelectatic areas, which does not make radiography a method capable of distinguishing bacterial pneumonia from acute viral bronchiolitis. When requested, it must be analyzed in conjunction with other clinical findings for better diagnostic elucidation (MANUEL et al.,2021).

CLINICAL DIAGNOSIS

Acute viral bronchiolitis is a disease with an eminently clinical diagnosis through the presence of signs and symptoms and, as previously mentioned, the request for additional tests must be carried out with caution. Carrying out viral tests for diagnostic purposes is not recommended, if carried out they are for epidemiological purposes, however it is known that carrying out tests for viral detection reduces the use of antibiotics erroneously (ALBERTO et al.,2020).

TESTS FOR VIRAL DETECTION

Among the tests for viral detection, there are two main ones that are most commonly used, being the multiplex PCR, which is used for hospitalized patients, where it evaluates a panel for respiratory viruses with great sensitivity, being the method of choice, but they must be interpreted with caution. due to the presence of false positives (JARAMILLO et al.,2020).

Rapid antigen tests are available for respiratory syncytial virus and some other viruses, with sensitivity ranging from 70-90% (TORTOSA et al., 2021).

TREATMENT

The treatment of bronchiolitis ranges from outpatient treatment to patients admitted to an intensive care unit, that is, the therapeutic measures vary according to the severity of the condition. For mild conditions where

management can be outpatient, we must always advise the mother or caregiver regarding the expected clinical course for the condition, teaching nasal aspiration techniques, adequate fluid intake, avoiding the use of decongestants and indications for returning to the unit in cases of cyanosis, apnea, poor diet, increased respiratory rate or respiratory work (FELIPE et al., 2018).

In addition to outpatient monitoring, carefully observing the evolution of the disease, in the case of patients who do not improve, do not present an expected evolution, we must raise the possibilities of differential diagnoses such as pneumonia, foreign body aspiration and cardiac changes (MARTÍ et al.,2019).

With regard to critically ill patients treated in the emergency department, treatment is based on stabilizing the respiratory condition and ensuring a state of hydration, fever control, use of hypertonic saline solution, adequate nutrition, and the use of supplemental oxygen may be necessary and to Babies with severe respiratory distress despite the use of non-invasive ventilation (NIV) may require mechanical ventilation (LEGIDO et al.,2019).

THERAPIES OF UNPROVEN BENEFITS

Among them we have leukotriene inhibitors, since leukotrienes can play a role in the inflammation of the airways of these patients, another drug would be Heliox, which is suggested not to be used routinely as it does not seem to accelerate recovery or reduce the need for advanced ventilatory support. The other drug listed would be ribavirin, an antiviral against the syncytial virus, which plays no role in the routine treatment of acute viral bronchiolitis, as does the use of surfactant, (NOBRE et al.,2022)

IMMUNOPROPHYLAXIS

We also use specific monoclonal antibodies for the respiratory syncytial virus, however these antibodies are not used for current respiratory syncytial virus infection but rather as prophylaxis such as palivizumab, which is administered with five monthly intramuscular injections during the seasonal period. of the virus in each region. This immunoprophylaxis is available for children who meet the eligibility criteria for the use of palivizumab (MORENO et al., 2019)

FUTURE PERSPECTIVES

In view of what is discussed in the article, infection by the respiratory syncytial virus, the main cause of acute viral bronchiolitis, is a topic that deserves to be discussed widely, due to the severity of its conditions, and the recurrent need for hospitalizations, installation of respiratory support. We know that there is nothing very concrete for the treatment of the respective disease, but we are hopeful about the future perspectives related to the use of therapies with monoclonal antibodies, especially palivizumab, thus covering children at highest risk for developing the severe form of the disease.

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