

Respiratory Syncytial Virus and Influenza Therapeutics in Clinical Development

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Abstract

RSV and influenza are two major viral infections that affect people all over the world. In newborns, young children, and older or immunocompromised people, RSV is a common cause of respiratory tract infections. Although findings suggesting a reduced need for supplemental oxygen led to the approval of aerosolized ribavirin for RSV treatment, ribavirin use is limited due to efficacy, safety, and cost concerns. RSV is now treated mostly with supportive care. New antiviral therapies for RSV are in the early phases of development, but the US Food and Drug Administration will take years to approve any of them (FDA). Palivizumab, a monoclonal antibody against RSV, has been shown to be beneficial in preventing disease and is the only authorised IP for RSV disease in high-risk paediatric groups. Although its efficacy is well proven, major obstacles to its clinical use include expense, the requirement for monthly injections, and the American Academy of Paediatrics' changing policy on its use (AAP). The development of an RSV vaccine would allow for the prevention of RSV disease (e.g., live-attenuated, vector-based subunit, or particle-based). New long-acting monoclonal antibodies, on the other hand, have shown promise in early clinical trials. Despite technological breakthroughs, Palivizumab should be utilised to minimise RSV illness burden in high-risk patients who are prescribed it until other treatments become available.

Keywords: Respiratory syncytial virus (RSV), LRTI, Influenza Virus

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Introduction

Although respiratory syncytial virus (RSV) disease is self-limiting in otherwise healthy children and adults, serious lower respiratory tract infections (LRTIs) that require hospitalisation, such as bronchiolitis and pneumonia, can occur in infants, high-risk children, adults with comorbidities, and the elderly. RSV infects almost all children by the age of 24 months, and reinfection continues throughout one's life [1]. RSV disease is now treated mostly with supportive measures such as hydration, supplementary oxygen, airway suctioning, and, if necessary, mechanical ventilation [1]. Ribavirin is the only antiviral treatment for RSV disease that has been approved by the FDA. However, owing of concerns about patient toxicity and the safety of health care providers, as well as an inconvenient route of administration, it is currently limited to life-threatening RSV infections in immunocompromised individuals (aerosol). Furthermore, recent pricing changes have rendered this unfeasible for many institutions. Ribavirin has also failed to have a significant influence on clinically important outcomes, including as death, length of stay in the hospital, requirement for mechanical ventilation, and ICU admission [2]. Other medications, such as beta-adrenergic drugs, corticosteroids, and hypertonic saline, may give symptomatic relief but are not recommended by the

American Academy of Pediatrics (AAP). When there is evidence of secondary bacterial infection, antibiotics are considered [3]. The flu, COVID-19, and respiratory syncytial virus (RSV) are all viruses that cause highly contagious respiratory diseases. COVID-19 is caused by the SARS-CoV-2 virus, whereas RSV is caused by the respiratory syncytial virus. A person can be infected by numerous viruses at the same time [4]. The antiviral drug ribavirin, which can be used in extreme high-risk instances, and bronchodilators are among the medications used to treat respiratory syncytial virus (RSV) infection. The effectiveness of bronchodilators or racemic epinephrine in the treatment of RSV disease has yet to be established. Treatments for RSV: Using a bulb syringe and saline drops, remove any sticky nasal fluids. To keep the air wet and make breathing easier, use a cool-mist vaporizer. Small amounts of fluid should be given to your child throughout the day. Fever reducers other than aspirin, such as acetaminophen, should be used. RSV testing detects respiratory syncytial virus in nasal secretions and aids in the diagnosis of the infection. Most people recover from RSV infections without needing any special treatment or going to a doctor to get tested. When an infected individual sneezes or coughs, the virus becomes airborne and enters your body through your eyes, nose, or mouth, and spreads through close contact. It can also be transferred by contacting virus-infected objects and then touching your face. RSV can

survive for several hours on hard surfaces. Coughs and sneezes should be covered with a tissue or your upper shirt sleeve, not your hands, to prevent RSV. Hands should be washed often with soap and water for at least 20 seconds. Kissing, shaking hands, and sharing cups and dining utensils with others are all bad ideas. High-dose azithromycin for 3 days safely reduced hospital stay and endotracheal markers for viral replication in young children with severe respiratory syncytial virus infection in phase 2 controlled clinical trials. RSV (respiratory syncytial virus) is a common winter virus that affects people of all ages and causes wheezing, particularly in small children [5].

Conclusion

Systemic corticosteroids have been tested in children with RSV-related bronchiolitis and wheeze and found to have no therapeutic benefit. Although you won't be able to lessen the duration of a respiratory syncytial virus infection, you can try to alleviate some of the symptoms. Other ways to relieve symptoms

include breathing moist air, drinking plenty of water, using saline nasal drops, taking over-the-counter pain medicines, and avoiding cigarette smoke. As a result, it is critical to treat this sickness as soon as possible and to be self-aware.

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