

An Introduction to Nirsevimab

Nirsevimab – uvođenje u praksu

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Respiratory syncytial virus (RSV) is a dominating respiratory infection worldwide. It is responsible for infecting millions of children worldwide each winter through highly contagious droplets and secretions (3). Over 2.1 million of these children require some form of medical attention during illness (2). Due to this high disease burden, the development of new agents to prevent or reduce the spread of RSV has been a top priority. Recently, nirsevimab, a new monoclonal antibody was introduced for the 2023-2024 winter season that holds promise for limiting the spread, morbidity, and mortality associated with RSV.

After relying solely on palivizumab (synagis) for many years, parents and pediatricians alike are overjoyed with the novelty of nirsevimab. Although nirsevimab is referred to as an infant “vaccine,” it has the composition of a monoclonal antibody. Specifically, nirsevimab binds and blocks a glycoprotein responsible for allowing viral and host cell membrane fusion thus inhibiting infection (1). Both A and B strains of RSV appear to be equally disengaged by the antibody with studies demonstrating efficacy up to 5 months post vaccination. Clinical trials demonstrated a 60-80% reduction in health care visits and hospitalizations in nirsevimab-vaccinated compared to non-vaccinated subjects (1). Investigators hope that widespread use of nirsevimab will reduce the surge of hospital admissions associated with peak RSV season thus limiting the burden on patients and the health care system alike.

The expansion of eligibility guidelines for nirsevimab administration in comparison to palivizumab are also promising. Nirsevimab is the first available injection indicated for all infants up to 8 months of life who are entering their first RSV season, unlike the recommendations of palivizumab for only high-risk infants (2). Ideally, the weight dependent dose would be given during the first week of life or shortly before the infectious season begins (3). They may also be eligible during the second winter season up to 19 months of age pending a high-risk medical history (1). Finally, nirsevimab is a one-time injection eliminating the need for monthly dosing associated with palivizumab. Pregnant women are also eligible to receive nirsevimab between 32-36 weeks of gestation (1). The transfer of

maternal antibodies after vaccination confers the same immunity as a newborn receiving the injection, therefore, infants whose mothers received vaccine more than 14 days prior to delivery are ineligible for vaccination themselves (3).

Although the data is strongly in support of nirsevimab, the logistics of timely administration is already being optimized for the winter of 2024-2025 in the United States and worldwide. Manufacturing rates fell short of demand this season and calls have already been made to increase production for next year’s respiratory viral season. In addition, insurance companies in the United States are aiming to improve reimbursement to providers and practices in order to facilitate timely dosing. Finally, the optimal setting for vaccine administration has not yet been finalized. There are advocates for hospital/post-partum units vaccinating newborns before discharge while others suggest nirsevimab be given at the first primary care visit. It is also difficult to track which mothers received vaccine and the timing of pre-partum vaccination related to the newborn’s eligibility since different providers administer vaccine to the mother and the infant. As these questions are met and answered, pediatricians look forward to the promise of decreasing RSV infection worldwide.

References:

1. Meissner, H.Cody. “The Beginning of a New Era in RSV Control.” *Pediatrics*. Volume 152. Number 5. Pages: 52-55. November 2023.
2. Sun, Mingyao, et al. “Monoclonal Antibody for the Prevention of Respiratory Syncytial Virus in Infants and Children. A Systematic Review and Network Meta-analysis.” *JAMA Network*. 6(2). February 17, 2023.
3. “Respiratory syncytial virus infection: Prevention in infants and children.” www.uptodate.com. Accessed: February 18, 2024.

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