

Potential for Nirsevimab use in Pakistan

Muhammad Moaz, Basum Hayat

Dear Madam, Respiratory Tract Infections can be classified as upper and lower tract infections. Upper tract infections are more common such as laryngitis and pharyngitis, but the infections of lower respiratory tract are more fatal such as influenza or bronchitis. Respiratory Syncytial Virus (RSV) is one of the major causes of acute lower respiratory tract infections and consequent admissions to hospital among young children. This virus belongs to paramyxoviridae family and is an RNA virus. It can cause a range of respiratory symptoms such as cold-like symptoms to more severe respiratory distress and complications such as bronchiolitis and pneumonia. It spreads through respiratory droplets when an individual infected with it, coughs, or sneezes. Preterm infants are highly susceptible to RSV infection due to weak immune system.

A new study published in 2022¹ unveiled the use Nirsevimab for the avoidance of RSV in late preterm and term infants. When a single dose of this monoclonal antibody was administered before the RSV season, the incidence of RSV-associated lower respiratory tract infections was 70.1% lower than the placebo group. It has an extended half-life and has high efficacy against medically attended RSV-associated lower respiratory tract infections. Moreover, the safety profile of Nirsevimab and Palivizumab, another commonly prescribed antibody medication, were similar as indicated in a study of 2022.² Moreover, a study indicated that single dose of Nirsevimab was enough to provide protection during a typical season of RSV which is a bright prospect in comparison to monthly doses of palivizumab.¹

Pakistan is already an endemic country for viral infections this is further compounded by the fragility of its healthcare system, rendering this issue notably significant.³ The characteristics of the virus in addition to the environmental conditions that favour its transmission contribute to its

3rd Year MBBS Student, Shifa College of Medicine, Islamabad, Pakistan.

Correspondence: Muhammad Moaz. e-mail: muhammad.moaz150@gmail.com
ORCID ID: 0009-0009-9157-4416

Submission completed: 14-04-2024 **1st Revision received:** 26-04-2024

Acceptance: 27-11-2024 **2nd Revision received:** 26-11-2024

typical seasonal pattern. Another research study determined that outbreaks of respiratory viruses predominantly occur during the winter and early spring seasons, with a significant proportion of confirmed cases being admitted during the months of November, December, and January.⁴ Another study showed that RSV circulates all around the year in Karachi, Pakistan with prime time being the monsoon rains between July and September. RSV was responsible for almost 33% acute respiratory infections related hospitalizations in young infants in this study.⁵

The use of Nirsevimab in the healthcare setup of Pakistan to treat infants with lower respiratory tract infections associated to RSV holds the potential to address the UN Millennium Development goal 4 regarding the reduction of neonatal and childhood mortality.

Disclaimer: None.

Conflict of interest: None.

Funding disclosure: None.

DOI: <https://doi.org/10.47391/JPMA.20282>

References

1. Hammitt LL, Dagan R, Yuan Y, Baca Cots M, Bosheva M, Madhi SA, et al. Nirsevimab for Prevention of RSV in Healthy Late-Preterm and Term Infants. *N Engl J Med* 2022;386:837-46. doi: 10.1056/NEJMoa2110275
2. Domachowske J, Madhi SA, Simões EAF, Atanasova V, Cabañas F, Furuno K, et al. Safety of Nirsevimab for RSV in Infants with Heart or Lung Disease or Prematurity. *N Engl J Med* 2022;386:892-4. doi: 10.1056/NEJMc2112186.
3. Rana MS, Ikram A, Alam MM, Salman M. Novel coronavirus outbreak in Pakistan: Beware of dengue. *J Formos Med Assoc* 2021;120:765-6. doi: 10.1016/j.jfma.2020.07.027
4. Bashir U, Nisar N, Arshad Y, Alam MM, Ashraf A, Sadia H, et al. Respiratory syncytial virus and influenza are the key viral pathogens in children <2 years hospitalized with bronchiolitis and pneumonia in Islamabad Pakistan. *Arch Virol* 2017;162:763-7. doi: 10.1007/s00705-016-3146-7
5. Ali A, Yousafzai MT, Waris R, Jafri F, Aziz F, Abbasi IN, et al. RSV associated hospitalizations in children in Karachi, Pakistan: Implications for vaccine prevention strategies. *J Med Virol* 2017;89:1151-7. doi: 10.1002/jmv.24768.

Author Contribution:

MM: Data collection, review, drafting, final approval and agreement to be accountable for all aspects of the work.

BH: Data analysis, drafting, revision, final approval and agreement to be accountable for all aspects of the work.