

CORRECTION

Correction: Exploring the efficacy of interferon nebulization combined with immunoglobulin in the treatment of adenovirus pneumonia in children

Qi Zhang^{1,*}, Fengqin Xu¹, Fuzhe Chen¹

¹Pediatric Respiratory Medicine, Anhui Provincial Children's Hospital, 230051 Hefei, Anhui, China

*Correspondence

zq_dr26@163.com (Qi Zhang)

In the originally published article [1] (DOI: 10.22514/sv.2025.036), post-publication review by the Editorial Office identified that seven References [6, 20, 21, 22, 26, 34, 38] in Introduction and Discussion sections were inappropriate or did not support the corresponding statement in the text.

In collaboration with the authors, the following corrections have been made in this Correction.

1. Replacement of reference [6]

The original reference [6] has been replaced with more relevant citation:

[6] Perez EE, Orange JS, Bonilla F, Chinen J, Chinn IK, Dorsey M, *et al.* Update on the use of immunoglobulin in human disease: a review of evidence. *The Journal of Allergy and Clinical Immunology*. 2017; 139: S1–S46.

The corresponding text have been revised as follows:

Original text: “Immunoglobulin, a passive immune product that includes antibodies targeting diverse microorganisms, is commonly utilized in clinical settings to address immune deficiencies like immunoglobulin deficiency, thus enhancing effectiveness to a certain degree [6].”

Corrected text: “Immunoglobulin preparations provide passive antibody-mediated protection and are widely used as replacement therapy in patients with primary antibody deficiencies or other humoral immunodeficiency disorders [6].”

2. Replacement of references [20, 21, 22]

The original references [20, 21, 22] have been replaced with more relevant citations:

[20] Liu HF, Zhang XZ, Li PY, Luo YL, Tao XP, Xiao Y, *et al.* Efficacy and safety of aerosol inhalation of recombinant human interferon- α 2b injection in children hospitalized with human adenovirus pneumonia: a prospective, multicenter, randomized, controlled trial in China. *International Journal of Surgery*. 2026; 112: 9845–9856.

[21] Asmana Ningrum R. Human interferon alpha-2b: a therapeutic protein for cancer treatment. *Scientifica*. 2014; 2014: 970315.

[22] Nainwal N. Treatment of respiratory viral infections through inhalation therapeutics: challenges and opportuni-

ties. *Pulmonary Pharmacology and Therapeutics*. 2022; 77: 102170.

The corresponding text have been revised as follows:

Original text: “The primary mechanism of interferon α -2b's antiviral action involves blocking viral replication and proliferation. After entering the body, rhIFN- α 2b stimulates cells to generate antiviral proteins. This action results in the breakdown of viral mRNA and the blockage of its transcription, translation, and replication procedures. As a result, a wide-ranging antiviral impact is achieved and treatment effectiveness is improved [20, 21]. Moreover, interferon has the potential to boost the phagocytic capabilities of macrophages, thereby inhibiting the entry of 57 viruses into healthy cells. By utilizing nebulization, the medication can be swiftly administered to the patient's mucosal tissues, facilitating rapid absorption and efficiently managing the spread of the virus [22].”

Corrected text: “The antiviral effect of recombinant human interferon α 2b is mainly mediated by activation of interferon-related signaling pathways and induction of antiviral proteins, which can inhibit viral replication and modulate host immune responses [20, 21]. Inhalation-based delivery allows antiviral agents to act locally in the respiratory tract and has been explored as a therapeutic strategy for respiratory viral infections [22]. In addition to interferon-based antiviral therapy, immunoglobulin may provide passive immune support in infectious diseases.”

3. Replacement of reference [26]

The original reference [26] has been replaced with more relevant citation:

[26] Liang Y, Wei J, Shen J, Liang Z, Ma X, Du Y, *et al.* Immunological pathogenesis and treatment progress of adenovirus pneumonia in children. *Italian Journal of Pediatrics*. 2025; 51: 4.

The corresponding text have been revised as follows:

Original text: “The synergistic effect of combining immunoglobulin and interferon leads to a decrease in lung parenchymal involvement, enhances the secretion of immune factors by the thymus, promptly alleviates clinical symptoms, and enhances the overall effectiveness of treatment [26, 27].”

Corrected text: “Current pediatric evidence suggests that treatment strategies for adenovirus pneumonia in children may include antiviral therapy, respiratory support, bronchoscopy, immunomodulatory therapy, and supportive care. However, high-quality evidence for most specific drug regimens remains limited [26], with the notable exception of recent prospective studies on intravenous immunoglobulin [27].”

4. Replacement of reference [34]

The original reference [34] has been replaced with more relevant citation:

[34] Pu K, Huang Y, Shu C, Yan L, Han H. Intravenous immunoglobulin in the treatment of severe adenovirus pneumonia in children: a clinical observation of 210 cases. *Journal of Clinical Pediatrics*. 2014; 32: 449–452. (In Chinese)

The corresponding text have been revised as follows:

Original text: “It works to counteract inflammatory agents within the body, thereby boosting the immune system of the child. Immunoglobulin serves as a shield not only against bacterial infections (such as *Staphylococcus aureus*, *Corynebacterium diphtheriae*, *Streptococcus*) but also demonstrates effectiveness in combating viral infections like adenovirus, echovirus, and respiratory syncytial virus [34].”

Corrected text: “Intravenous immunoglobulin has been used as an adjunctive immunomodulatory therapy in children with severe adenovirus pneumonia. A clinical observation study involving 210 children with severe adenovirus pneumonia reported that intravenous immunoglobulin treatment was associated with shorter fever duration, shorter hospital stay, reduced duration of mechanical ventilation, and fewer complications, with no obvious adverse drug reactions [34].”

5. Replacement of reference [38]

The original reference [38] has been replaced with more relevant citation:

[38] Wang HQ, Ma LL, Jiang JD, Pang R, Chen YJ, Li YH. Recombinant human interferon alpha 2b broad-spectrum anti-respiratory viruses pharmacodynamics study *in vitro*. *Acta Pharmacologica Sinica*. 2014; 49: 1547–1553. (In Chinese)

The corresponding text have been revised as follows:

Original text: “Recombinant human interferon functions by attaching to interferon receptors located on the surface of target cells. This action triggers the generation of various antiviral proteins that hinder viral replication, synthesis, and transcription. Consequently, this process helps to dampen the inflammatory response [38].”

Corrected text: “Recombinant human interferon $\alpha 2b$ can induce antiviral proteins and inhibit viral replication, thereby providing a mechanistic rationale for its use in respiratory viral infections. By reducing viral replication and modulating host antiviral responses, interferon therapy may indirectly contribute to improvement in infection-related inflammatory indicators [38].”

The authors confirm that these corrections are limited to reference appropriateness and the clarification of the statements. These corrections do not affect the scientific content, results, interpretations, or conclusions of the original study.

The authors sincerely apologize for these inaccuracies and any inconvenience caused. This Correction has been approved by the Editor-in-Chief. The original article PDF remains available as published and has not been altered. Readers are advised to refer to this Correction for the updated references [6, 20, 21, 22, 26, 34, 38] and the corrected text.

REFERENCES

- [1] Zhang Q, Xu FQ, Chen FZ. Exploring the efficacy of interferon nebulization combined with immunoglobulin in the treatment of adenovirus pneumonia in children. *Signal Vitae*. 2025; 21: 53–59.