

Letter to the Editor

COVID-19 Prognosis in Children With Asthma

Javad Ghaffari^{1,2*}

1. Molecular and Cell Biology Research Center, Communicable Diseases Institute, Mazandaran University of Medical Sciences, Sari, Iran.

2. Pediatric Infectious Diseases Research Center, Communicable Diseases Institute, Mazandaran University of Medical Sciences, Sari, Iran.



Citation Ghaffari J. COVID-19 Prognosis in Children With Asthma. Journal of Pediatrics Review. 2022; 10(Special Issue):363-366. <http://dx.doi.org/10.32598/jpr.10.SpecialIssue.28.16>

<http://dx.doi.org/10.32598/jpr.10.SpecialIssue.28.16>

Dear Editor

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a new coronavirus disease that is highly contagious and affects all age groups of children. The incubation period of Coronavirus disease (COVID-19) ranges from 2 to 14 days. Diagnosis of COVID-19 is made by conducting nasal and pharyngeal swabs and analyzing sputum, stool, and blood samples for COVID-19 nucleic acid using reverse-transcription polymerase chain reaction (RT-PCR). A nasal swab is more sensitive and specific than a pharyngeal swab. Lung CT imaging is a confirmation and complimentary method which is more sensitive than RT-PCR analysis. The mortality rate of COVID-19 infection is very low in children. Treatment of COVID-19 is supportive care and home isolation for 2 weeks (1). The disease has now spread to most countries. Clinical manifestations of COVID-19 vary from asymptomatic to a severe form in children (2).

Allergic disorders, including asthma, are frequent worldwide and have been increasing for decades. Asthma is the most common non-communicable disease in children (3). Asthma treatments can be continued during COVID-19 infection, but biological drugs should be stopped during the acute phase of COVID-19 infection (4-6). Asthmatic patients, particularly with severe or un-

controlled asthma, are at increased risk of manifesting a severe form of COVID-19 (7, 8).

Allergy or asthma is not a risk factor for the higher prevalence of COVID-19 in this population. COVID-19 infection is lower and has a less severe course in children (8). Uncontrolled asthma and immunodeficiency are risk factors for COVID-19 infection; therefore, appropriate medications are recommended on the excellent control of asthma (8, 9). Oral steroids should be continued in the management of asthma when the patient is already taking these medications and in acute asthma attacks due to COVID-19 based on the Global Initiative for Asthma (GINA) and the British Thoracic Society (BTS) guidelines (10, 11). In some countries, for patients with severe asthma, shielding and protection such as home isolation for up to 12 weeks are recommended (12). Allergy treatments, including antihistamines, corticosteroids, and bronchodilators, do not increase susceptibility to or the severity of COVID-19 disease (8, 13). Patients with allergic asthma, allergic rhinitis, or other allergic conditions should be treated according to guidelines (8, 13, 14). Biologic drugs should be withheld during acute COVID-19 infection (13). GINA recommends avoiding using nebulizers for asthma attacks due to the increased risk of disseminating COVID-19 to other personnel. Therefore, a pressurized metered-dose inhaler (pMDI) via a spacer is the preferred treatment during asthma attacks (9). Atopic dermatitis or active skin lesions has

* Corresponding Author:

Javad Ghaffari, PhD.

Address: Molecular and Cell Biology Research Center, Communicable Diseases Institute, Mazandaran University of Medical Sciences, Sari, Iran.

Tel: +98 (11) 33260053-4

E-mail: javadneg@yahoo.com

not been associated with a higher risk of SARS-CoV-2 infection. Patients with severe or uncontrolled asthma are at increased risk of developing more severe forms of COVID-19 but not preexisting allergic disorders (4). Incidence, clinical features, laboratory findings, disease course, and immunological findings are comparable between allergic and non-allergic children with COVID-19 infection (14). A recent study from the USA suggests that asthma disease is much more common in children and adults with COVID-19 than it was already reported in China and Europe (15).

The association between allergic disease and severe clinical outcomes of COVID-19 has remained unclear. The best option to prevent COVID-19 is the social distancing of families with asthmatic children (16). COVID-19 is not associated with severe asthma exacerbations and uncontrolled asthma, developing more severe COVID-19 (17). Unlike previous studies, Lommatzsch et al. believed that allergic asthma might have a lower risk of developing a severe form of COVID-19 and omalizumab (anti-IgE antibody) enhances anti-viral immunity (18). There is no relation between asthma, asthma medication, or asthma severity and the clinical outcomes of COVID-19 (19). Castro-Rodriguez et al. reported that asthma is a potential risk factor for COVID-19 severity but not mortality in children (20).

Ethical Considerations

Compliance with ethical guidelines

All ethical principles are considered in this article.

Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

Conflicts of interest

The author declared no conflict of interest.

Acknowledgments

The author would like to thank the Clinical Research Development Unit of Bu-Ali Sina Hospital, Mazandaran University of Medical Sciences, Sari, Iran, for their support, cooperation, and assistance.

References

- Zare-Zardini H, Soltaninejad H, Ferdosian F, Hamidieh AA, Memarpour-Yazdi M. Coronavirus disease 2019 (COVID-19) in children: Prevalence, diagnosis, clinical symptoms, and treatment. *International Journal of General Medicine*. 2020; 13:477-82. [DOI:10.2147/IJGM.S262098] [PMID] [PMCID]
- Du H, Dong X, Zhang JJ, Cao YY, Akdis M, Huang PQ, et al. Clinical characteristics of 182 pediatric COVID-19 patients with different severities and allergic status. *Allergy*. 2021; 76(2):510-32. [DOI:10.1111/all.14452] [PMID] [PMCID]
- Ghaffari J, Aarabi M. The prevalence of pediatric asthma in the Islamic Republic of Iran: A review and meta-analysis. *Journal of Pediatrics Review*. 2013; 1(1):2-11. <http://jpr.mazums.ac.ir/article-1-31-en.html>
- Cardinale F, Ciprandi G, Barberi S, Bernardini R, Caffarelli C, Calvani M, et al. Consensus statement of the Italian society of pediatric allergy and immunology for the pragmatic management of children and adolescents with allergic or immunological diseases during the COVID-19 pandemic. *Italian Journal of Pediatrics*. 2020; 46:84. [DOI:10.1186/s13052-020-00843-2] [PMID] [PMCID]
- Ghaffari J, Dabbaghzadeh A, Ghaffari N. COVID-19 and asthma: What comments we need to know? *Chronic Diseases Journal*. 2020; 8(2):94-8. <http://cdjournal.muk.ac.ir/index.php/cdj/article/view/517>
- Ghaffari J. Biological agents in allergic disorders during COVID-19. *Pharmaceutical and Biomedical Research*. 2020; 6(s2):59-60. [DOI:10.18502/pbr.v6i(S2).5653]
- CDC. Coronavirus Disease 2019 (COVID-19). *Cent Dis Control Prev*. 2020. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/asthma.html> Accessed April 2, 2020.
- Brough HA, Kalayci O, Sediva A, Untersmayr E, Munblit D, Rodriguez del Rio P, et al. Managing childhood allergies and immunodeficiencies during respiratory virus epidemics - The 2020 COVID-19 pandemic: A statement from the EAACI-section on pediatrics. *Pediatric Allergy and Immunology*. 2020; 31(5):442-8. [DOI:10.1111/pai.13262] [PMID] [PMCID]
- Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Zh, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: A retrospective cohort study. *The Lancet*. 2020; 395(10229):1054-62. [DOI:10.1016/S0140-6736(20)30566-3]
- Global Initiative for Asthma. COVID-19: GINA answers to frequently asked questions on asthma management [Internet]. 2020 [Updated 2020 March 25]. Available from: <https://ginasthma.org/covid-19-gina-answers-to-frequently-asked-questions-on-asthma-management/>
- BTS Advice for Healthcare Professionals treating patients with asthma. [Accessed April 5, 2020]. Available at: <https://www.brit-thoracic.org.uk/document-library/quality-improvement/covid-19/bts-advice-for-healthcare-professionals/>

12. Shielding advice for very high-risk groups. Asthma UK. Available at: <https://www.asthma.org.uk/advice/triggers/coronavirus-covid-19/shielding-advice-high-risk/>
13. Clinical management of severe acute respiratory infection when COVID-19 is suspected. Available at: <https://www.who.int/publications-detail/clinical-management-of-se>
14. Gao YD, Agache I, Akdis M, Nadeau K, Klimek L, Jutel M, Akdis CA. The effect of allergy and asthma as a comorbidity on the susceptibility and outcomes of COVID-19. *International Immunology*. 2022; 34(4):177-88. [DOI:10.1093/intimm/dxab107] [PMID] [PMCID]
15. Morais-Almeida M, Aguiar R, Martin B, Ansotegui IJ, Ebisawa M, Arruda LK, et al. COVID-19, asthma, and biological therapies: What we need to know. *World Allergy Organization Journal*. 2020; 13(5):100126. [DOI:10.1016/j.waojou.2020.100126] [PMID] [PMCID]
16. Licari A, Votto M, Brambilla I, Castagnoli R, Piccotti E, Olcese R, et al. Allergy and asthma in children and adolescents during the COVID outbreak: What we know and how we could prevent allergy and asthma flares? *Allergy*. 2020; 75(9):2402-5. [DOI:10.1111/all.14369] [PMID] [PMCID]
17. Papadopoulos NG, Custovic A, Deschildre A, Mathioudakis AG, Phipatanakul W, Wong G, et al. Impact of COVID-19 on pediatric asthma: Practice adjustments and disease burden. *The Journal of Allergy and Clinical Immunology: In Practice*. 2020; 8(8):2592-9.E3. [DOI:10.1016/j.jaip.2020.06.001] [PMID] [PMCID]
18. Lommatzsch M, Stoll P, Virchow JC. COVID-19 in a patient with severe asthma treated with Omalizumab. *Allergy*. 2020; 75(10):2705-8. [DOI:10.1111/all.14456] [PMID] [PMCID]
19. Choi YJ, Park JY, Lee HS, Suh J, Song JY, Byun MK, et al. Effect of asthma and asthma medication on the prognosis of patients with COVID-19. *European Respiratory Journal*. 2021; 57:2002226. [DOI:10.1183/13993003.02226-2020] [PMID] [PMCID]
20. Castro-Rodriguez JA, Forno E. Asthma and COVID-19 in children - a systematic review and call for data. *medRxiv*. 2020; May. [DOI:10.1101/2020.05.04.20090845]

This Page Intentionally Left Blank