

Is Covid-19 a Trigger of Alice in Wonderland Syndrome?

Stefan Bittmann^{*}, Elena Moschüring-Alieva¹, Elisabeth Luchter¹, Lara Bittmann¹ and Gloria Villalon¹

Abstract

Alice in Wonderland syndrome results in changes in the perception of one's surroundings. These changes include both micropsia and macropsia (everything appears reduced or enlarged), as well as altered auditory perception, altered tactile perception, and altered sense of time.

The syndrome is particularly common in children. We report the first pediatric case of Alice in Wonderland syndrome two weeks after COVID-19 infection.

Keywords: Wonderland syndrome; Micropsia; Macropsia.

Introduction

COVID-19 is a notifiable infectious disease [1-7]. The coronavirus SARS-CoV-2 has a broad, nonspecific spectrum of symptoms. The virus was first primarily found in Wuhan, China, in December 2019.

It spread very rapidly worldwide and is the cause of the COVID-19 pandemic. By January 31, 2022, more than 373 million COVID-infected people were registered worldwide, but a high number of unreported cases is suspected in many countries. More than 5.6 million people have been registered as deaths related to COVID disease; again, the number of unreported cases is high. Infection with

SARS-CoV-2 occurs through droplet infection (inhalation of virus-laden aerosols)-especially when staying in closed and insufficiently ventilated rooms. The Robert Koch Institute (RKI) has not ruled out the possibility of smear infection through contaminated surfaces. To avoid infection, spatial distancing ("social distancing"), contact restriction, wearing a protective medical mask, and hygiene measures are recommended. The spread of COVID-19 to the global pandemic was facilitated by "superspreading." The incubation period of COVID-19 averages around one week; however, up to two weeks can elapse between infection and the appearance of the first

¹Ped Mind Institute (PMI), Medical and Finance Center Epe, Gronau, Germany

^{*}Corresponding Author: Stefan Bittmann
Ped Mind Institute (PMI), Medical and Finance Center Epe, Gronau, Germany.

Received Date: 05-05-2022

Accepted Date: 05-14-2022

Published Date: 06-06-2022

Copyright© 2022 by Bittmann S. All rights reserved. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

symptoms. Occasionally, first clinical expressions appear within 24 hours of infection. It is particularly insidious that an infected person can be infectious (contagious) days before the first symptoms appear, and even after they have subsided. The course of the disease is nonspecific and can vary greatly. According to the estimate of the RKI, 55 to 85% of infected persons have noticeable symptoms and/or show recognizable signs of disease (symptoms) or typical symptom combinations (syndrome) of a COVID-19 disease (manifestation index). The remaining infected persons are symptom-free and show no symptoms; they are asymptotically ill but can still spread the virus. About 81% of registered cases have a mild course with fever or mild pneumonia, cough, and fatigue state. Less common are a stuffy nose, headache, sore throat, aching limbs, conjunctivitis, diarrhea, vomiting, loss of taste and smell, skin rash, or discoloration of fingers or toes. In 15% of cases, the course is more severe, and in about 5% it is so severe that patients must be ventilated in an intensive care unit. Severe cases of COVID-19 show bilateral pneumonia and acute respiratory failure occur; affected individuals may die. Pathological processes of the liver, central nervous system, kidneys, blood vessels, and heart have been described.

Case report

A 5 years-old boy reported, who developed Alice in Wonderland like seizures in form of telopsia of the arms and legs 2 weeks after Covid-19 infection diagnosed by PCR-testing. Time distortion weeks after COVID-19 infection, the boy could not exactly ruled out due to the early age of the child [2,3]. Two

developed telopsia and saw objects far away. The episodes lasts about once a day with a time duration of 10-30 minutes. The child had no migraine episodes, nor any familial members with migraine. Till date of seizures, the child has never been ill and never took drugs or pharmaceutical medication. EEG and MRI was not informative. No familial member had any of these curious visual disturbance before. To date of this publication, the episodes still not quit. The family attended to a pediatric neurologist for further work-up.

Discussion

Alice in Wonderland syndrome (AIWS) shows disturbances in the perception of patients. These visual disturbances can include both micropsia and macropsia, as well as altered auditory, tactile disturbances or time distortion [1-7]. The syndrome is particularly common in children but is also found in adolescents. Episodes differ in duration and may also be completely painless, although relating symptoms such as vomiting episodes, and light sensitivity and sound perception are more pronounced and show similar signs to migraine. Neurological disturbances may occur, so that the affected child begins to show hallucinations [1-7]. Patients perceive the body as larger or smaller and/or begins to see serious visual disturbances. In extreme cases, falls and other accidents may occur, but this entity is present in rare cases. The visual disturbances can cause Alice in Wonderland syndrome to be misinterpreted with other neurological entities like migraine or Charles-Bonnet syndrome.

Since a few months, cases of Alice in Wonderland syndrome seem to be more present and obvious especially after Covid-19 infection in children. Since a few months, Facebook groups discuss an upcoming degree of parents, who are concerned about their children with Alice in Wonderland like seizures after Covid-19 infection.

Conclusion

This case report focusses on this new relation between the new coronavirus disease and Alice in Wonderland like features in 5 years-old boy 2 weeks after Covid-19 infection, so coronavirus could act as a trigger in AIWS in childhood and should be closer evaluated by further cases. Is Covid-19 a Trigger of Alice in Wonderland Syndrome?

References

1. Ellul MA, Benjamin L, Singh B, Lant S, Michael BD, Easton A, et al. Neurological associations of COVID-19. *Lancet Neurol.* 2020;19(9):767-83. [PubMed](#) | [CrossRef](#)
2. Lin JE, Asfour A, Sewell TB, Hooe B, Pryce P, Earley C, et al. Neurological issues in children with COVID-19. *Neurosci Lett.* 2021;743:135567. [PubMed](#) | [CrossRef](#)
3. Varatharaj A, Thomas N, Ellul MA, Davies NWS, Pollak TA, Tenorio EL, et al. Neurological and neuropsychiatric complications of COVID-19 in 153 patients: a UK-wide surveillance study. *Lancet Psychiatry.* 2020;7(10):875-882. [PubMed](#) | [CrossRef](#)
4. Ghosh R, Dubey MJ, Chatterjee S, Dubey S. Impact of COVID-19 on children: special focus on the psychosocial aspect. *Minerva pediatri.* 2020;72(3):226-35. [PubMed](#) | [CrossRef](#)
5. Orsini A, Corsi M, Santangelo A, Riva A, Peroni D, Foadelli T, et al. Challenges and management of neurological and psychiatric manifestations in SARS-CoV-2 (COVID-19) patients. *Neurol Sci.* 2020;41(9):2353-2366. [PubMed](#) | [CrossRef](#)
6. Rowley AH. Understanding SARS-CoV-2-related multisystem inflammatory syndrome in children. *Nat Rev Immunol.* 2020;20(8):453-4. [PubMed](#) | [CrossRef](#)
7. Dewanjee S, Vallamkondu J, Kalra RS, Puvvada N, Kandimalla R, Reddy PH. Emerging COVID-19 Neurological Manifestations: Present Outlook and Potential Neurological Challenges in COVID-19 Pandemic. *Mol Neurobiol.* 2021;58(9):4694-4715. [PubMed](#) | [CrossRef](#)