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Letter to the Editor: Brief Case Report

***Patients With
Schizophrenia-
Spectrum
Disorders as
Vulnerable
Populations in an
Age of
Misinformation:
A Case Report of
Ivermectin-
Related Liver
Failure***



Introduction

The COVID-19 pandemic has seen a surge in medical misinformation. In particular, popular media has amplified misinformation regarding the use of the antiparasitic drug ivermectin for prophylaxis and treatment of COVID-19. Here, we present the case of a patient, Mr. A, with a schizophrenia-spectrum disorder (SSD) who had been using ivermectin for this purpose. He was evaluated by the psychiatric consultation service after presenting in fulminant liver failure requiring emergent hepatic transplant.

Case

Mr. A, with a charted diagnosis of schizophrenia, was admitted to the hospital in fulminant liver failure after taking escalating daily doses of ivermectin for the past 6 months (up to 100 mg in the days leading to admission), in addition to supplements taken for years (including ashwagandha, uva ursi, chi shao, serrapeptase, burdock,

schisandra, mullein, bladderwrack, dandelion, neem leaf, nettle leaf, niacin, candidase). Mr. A ordered ivermectin online, seemingly without a prescription. He had no history of addiction and a negative urine toxicology screen on admission.

After liver transplant, the consultation-liaison (CL) psychiatry team was consulted for recommendations on starting a daily antipsychotic, as the primary transplant team was concerned Mr. A's charted history of schizophrenia would pose a risk to his transplant. Chart review revealed several emergency room visits for strange concerns (i.e., feeling parasites "wiggle"), and 1 inpatient psychiatric admission 4 years prior for suicidal ideation, disorganized thought, and odd statements regarding metaphysics. He was discharged on olanzapine but was nonadherent and subsequently received no antipsychotics. No functional decline was noted since.

Evaluation revealed a linear and organized thought process. He confirmed his motivation for taking supplements was to reduce his risk of parasitic and viral infection, denying this was an immediate concern. He had insight that the ivermectin and supplement use led to his liver failure.

Collateral from the Mr. A's mother revealed years of social isolation, paranoia, and belief in various conspiracy theories. He reportedly drank bleach when a former President suggested it may be a viable treatment for COVID-19.

Subsequent evaluations consistently revealed no active parasitosis

or hallucinations. The CL team felt that Mr. A's long-standing pattern of paranoid thinking, odd beliefs, parasitosis, metaphorical speech, and lack of close confidants was most congruent with schizotypal personality disorder. The CL psychiatry team recommended against standing antipsychotics.

Discussion

Since the beginning of the COVID-19 pandemic, a general sense of uncertainty has provided optimal conditions for the rise of COVID-19-related misinformation. Despite evidence that ivermectin is not an appropriate prophylaxis option for COVID-19, the Centers for Disease Control and Prevention has documented a rapid increase in ivermectin prescriptions and associated serious illnesses in the United States.¹ A case report of liver failure in a patient taking 1 dose of ivermectin² demonstrates its potential for hepatotoxicity. However, it is not possible to definitively conclude ivermectin was the cause of Mr. A's liver failure in the setting of his polysupplement use.

Systemic ivermectin is approved for treatment of parasitic worms in humans. According to the Food and Drug Administration, toxicity of ivermectin can manifest as nausea, vomiting, diarrhea, hypotension, allergic reactions, dizziness, ataxia, seizures, coma, and possible death. Ivermectin can be purchased online, as evident in the case of Mr. A.

It is not clear which media sources Mr. A was exposed to; however, social media has been identified as a

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major driver for ivermectin use,³ which poses a strong argument for holding social media platforms accountable for reducing the spread of medical misinformation. Some countries consider dissemination of misinformation a legal offense and fine those who spread it.⁴

When misinformation proliferates, vulnerable populations can be severely and negatively affected. This case highlights that patients with SSDs may be at increased risk of poor outcomes in a digital ecosystem rampant with misinformation. Social pressure can sway what those with schizophrenia believe to be true.⁵ Although this finding has not been studied in those with SSDs, it is an important consideration for the clinician working with patients with these conditions. Clinicians should be careful to avoid using leading questions and should consider screening at-risk patients' beliefs in harmful misinformation, especially in times of enormous risk such as during the current pandemic. A recent peer-reviewed commentary suggests physicians must take more active roles in disseminating correct information on

social media and participate in visible public debates regarding the validity of purported treatments.³

We believe Mr. A's SSD made him susceptible to medical misinformation, ultimately costing him both his health and liver. Many more patients like him exist. To reduce morbidity, mortality, and health care costs, more must be done to understand the effect of misinformation on patients with SSDs.

Conflicts of Interest: The authors declare that they have no conflict of interest.

Informed Consent: Patient consent was not available; no personally identifiable information was included.

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References

1. CDC Health Alert Network: Rapid Increase in Ivermectin Prescriptions and Reports of Severe Illness Associated with Use of Products Containing Ivermectin to Prevent or Treat COVID-19. Centers for Disease Control and Prevention; 2021:CDCHAN-00449, <https://emergency.cdc.gov/han/2021/han00449.asp>. [Accessed 3 September 2022]
2. Veit O, Beck B, Steuerwald M, Hatz C: First case of ivermectin-induced severe hepatitis. *Trans R Soc Trop Med Hyg* 2006; 100:795–797
3. Taccone FS, Hites M, Dauby N: From hydroxychloroquine to ivermectin: how unproven “cures” can go viral. *Clin Microbiol Infect*. Published online February 2022
4. Ogunleye OO, Basu D, Mueller D, et al: Response to the Novel Corona Virus (COVID-19) pandemic across Africa: Successes, Challenges, and Implications for the Future. *Front Pharmacol* 2020; 11:1205
5. Peters MJV, Moritz S, Tekin S, Jelicic M, Merckelbach H: Susceptibility to misleading information under social pressure in schizophrenia. *Compr Psychiatry* 2012; 53:1187–1193