

Acute Psychotic Episode Induced by *Helicobacter Pylori* Treatment

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In patients with psychotic symptoms, a differential diagnosis should be made to rule out organic causes, including drug use¹ and “antibiomania,” which occurs in patients treated with antibiotics.² This screening is especially important in patients with no history of mental health problems or risk factors for which psychotic symptoms are expected. Identification of organic causes of psychotic symptoms is essential for a correct approach to management and treatment.

Case Report

A 48-year-old man was hospitalized in the psychiatry department for a behavioral disorder. The patient had no history of mental health problems except for 2 episodes of anxiety in the past, managed by his primary care doctor with bromazepam 1.5 mg. He had no relevant medical or surgical history. He also had no history of consumption of any type of psychoactive substance and denied any family history of mental health problems.

A week before admission to the psychiatry department, he had started eradication treatment for *Helicobacter pylori* (*H. pylori*) with amoxicillin 1,000 mg/12 hours, clarithromycin 500 mg/12 hours, metronidazole 500 mg/12 hours, and omeprazole 20 mg/12 hours. The patient developed increasing anxiety, worsening nighttime rest, and persecutory delusions 48–72 hours after starting this treatment (reported by the patient and his wife). No hallucinatory symptoms were reported. The complementary tests showed no relevant findings.

During admission, antibiotic treatment was suspended, and

paliperidone 3 mg/night and lormetazepam 1 mg/night were prescribed. A significant clinical improvement was observed 24 hours afterward, with the remission of delusional symptoms in the subsequent days. He was discharged from the hospital 3 days after admission. He was diagnosed with drug-induced psychotic disorder (*ICD-10* code F19.959 and *DSM-5* criteria). At 1-month follow-up, the patient remained in clinical remission.

At the time of this writing, the *H. pylori* infection has remained untreated. The patient has been referred to a gastroenterologist to assess the symptoms and the potential antibiotic treatment, with the recommendation of maintaining the antipsychotic medication until treatment is complete.

Discussion

One of the most used therapies for *H. pylori* eradication consists of triple therapy with a proton pump inhibitor plus clarithromycin with amoxicillin and/or metronidazole.³ Neuropsychiatric symptoms comprise 5.5% of reported adverse reactions,⁴ with an increased relative risk of short-term psychotic events of 5.42%.⁵

The relationship between antibiotics and neuropsychiatric symptomatology vary from one pharmacologic family to another and is still under study.⁶ Notable in this regard is the neurotoxicity associated with the use of clarithromycin, which may be due to the possible γ -aminobutyric acid (GABA)-A antagonistic effect, which could induce epileptiform activity.⁷ Another hypothesis

theorizes that this symptomatology could be due to increased cortisol and prostaglandin levels, given its status as a cytochrome P450 3A4 inhibitor.⁸ In the case of metronidazole, one study⁹ linked its use to alterations in brain magnetic resonance imaging. Its neurotoxic effects are thought to be due to irreversible cell damage by inducing oxidative stress. In addition, there are other proposed mechanisms: an inhibitory effect on GABAergic neurotransmission,⁶ inhibition of monoamine oxidase via probable interaction with imidazoline, inhibition of protein synthesis by binding of metronidazole to neural ribonucleic acid, and reversible mitochondrial dysfunction.¹⁰

Neuropsychiatric adverse effects and psychosis have been reported with both drugs, with higher odds ratios (ORs) than for other antibiotics, even in the same family. The use of clarithromycin was associated with psychotic symptoms with an OR = 9.48 (95% CI, 6.14–14.65) and metronidazole with an OR = 6.21 (3.98–9.69).⁸ We must also take into account possible adverse reactions to proton pump inhibitors, for which psychotic symptoms have also been described among the reported side effects.¹¹

In conclusion, it is necessary to consider the side effects of some treatments such as antibiotics in patients with neuropsychiatric symptoms, especially when this symptomatology is presenting for the first time. The treatment of each patient with psychotic symptomatology should be reviewed for secondary causes, as in the case of our patient, and these adverse reactions should be taken into consideration in the prescription and follow-up of certain treatments.

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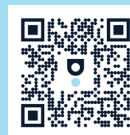
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