

## Ofloxacin induced hallucinations in a 6 years old child: A case report

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### Abstract

Ofloxacin is a commonly used fluoroquinolone antibiotic in adults as well as children. It is generally safe and well tolerated though rare neurological and psychiatric adverse reactions have been reported with Ofloxacin. We report a case of a 6 years old child who developed hallucinations after being started on Ofloxacin and which resolved on discontinuation of the drug.

**Keywords:** Ofloxacin, Hallucination, Fluoroquinolones.

### Introduction

Ofloxacin is a fluoroquinolone antibiotic that inhibits bacterial DNA gyrase causing bacterial cell death. It is well absorbed orally with the bioavailability of 98% and a half-life of 4-5 hours.<sup>1</sup> The overall rate of adverse events in patients treated with fluoroquinolones is roughly like that seen in patients treated with other antibiotic classes.<sup>2</sup> Neurological and psychiatric side effects like insomnia, restlessness, and rarely, seizure, convulsions, and psychosis have been reported with this group of antibiotics.<sup>3</sup> Ciprofloxacin has been the most implicated in this group<sup>4</sup> though delirium,<sup>5</sup> hallucinations<sup>6</sup> and psychosis<sup>7</sup> with Ofloxacin has been reported in anecdotal case reports. We report the case of a 6 years old child who developed hallucinations in three sensory modalities i.e. auditory, visual and tactile after treatment with Ofloxacin and which resolved after medication discontinuation, without treatment with antipsychotics.

### Case Report

A 6 years old boy was taken by his parents to a pediatrician with chief complaints of fever, sore throat, dry cough, and headache. He was prescribed Ofloxacin 400mg/day and Acetaminophen 500mg/day in divided doses. He responded well to this treatment and was apparently all right in 48 hours. On the 3<sup>rd</sup> day of treatment, he suddenly woke up in the early hours of the morning and started crying, claiming that there are insects crawling all over the walls. His mother woke up and turned on the lights to find that there were none. He also complained of hearing voices which were not audible to others of a group of people who weren't in the room. He also felt insects crawling all over his body. He also reported seeing a ghost sitting on his 10 months old sister. He was very agitated and wanted to run away from the house. When his grandmother started to calm him down, he started saying that there is blood coming out of her eyes and throat while there were no such phenomena. The child had no fever during this episode. The symptoms lasted approximately for 3-4 hours upon which he was taken for a walk and he calmed down. The parents did not give him any medication that day assuming the medication to be a cause of what happened. The day went fine and he slept well. The next day he woke up

asymptomatic and was brought to the psychiatry department for an evaluation without being given the dose of ofloxacin. He was no longer having the abnormal sensory experiences but remembered most of it. On further inquiry, it was found that he was given Ofloxacin 400mg full tablet twice a day instead of half tablet twice a day as prescribed which increased the daily ofloxacin dose to 800mg instead of 400mg.

There was no history suggestive of nightmares in the past or on the night of the said experiences or even a day after the same. There was no history of rash or any urinary or gastrointestinal complaints. The child's developmental history revealed no abnormality and clinical and neurological examination was unremarkable. The mental status examination was conducted which too revealed no abnormality. All routine investigations were within normal limits and the child remained behaviourally and mentally stable for the next 5 days. A magnetic resonance study of the brain was advised which revealed no abnormality. A diagnosis of Ofloxacin induced hallucinations was made and the parents were advised to avoid the use of Ofloxacin in the future and to inform all doctors they visited of the same in order to avoid such occurrences in the future. A Naranjo Adverse Drug Reaction Probability Scale administration yielded a score of +4 in favor of a moderate association of the hallucinations with Ofloxacin.<sup>8</sup>

### Discussion

Psychosis and hallucinations have not only been reported occurring with ofloxacin but also with other fluoroquinolones such as ciprofloxacin, levofloxacin, norfloxacin and gatifloxacin suggesting a class effect, i.e. fluoroquinolone-induced psychosis.<sup>9</sup> The mechanism of the hallucinations and psychosis could involve the upregulation of glutamatergic transmission in the brain via NMDA receptor involvement along with a hypothesis that inhibition of GABA binding to the GABA-A receptors may result in stimulation of the central nervous system which has been found in electroencephalographic studies.<sup>10-11</sup> In this case, probably a higher dose of Ofloxacin which was nearly a double dose

could have also contributed to the side effects considering raised plasma levels.

### Conclusion

It is important that clinicians and pediatricians be aware of this rare yet distressing side effect of Ofloxacin especially when prescribing the same to small children below the age of 10 years.

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