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Fluoxetine-induced blurring of vision: a rare ocular side effect

Abstract

A young male presented with second episode of depressive symptoms of one month duration; treatment started with fluoxetine and on third week of starting of treatment, he developed sudden onset blurring of vision due to mydriasis which dramatically improved after discontinuation of fluoxetine. There are evidences that selective serotonin reuptake inhibitors (SSRIs) can cause mydriasis through various mechanisms. Ocular side effects are rarely reported with SSRIs and we present such a case highlighting the same.

Keywords: Depression. Serotonin Uptake Inhibitors. Mydriasis.

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Introduction

Fluoxetine is a selective serotonin reuptake inhibitor (SSRI) with weak action on norepinephrine, M1 acetylcholine and weaker action on histamine 1, dopamine, and α1 and α2 receptors. It can cause blurring of vision due to mydriasis. Mydriasis is defined as dilatation of the pupil of the eye caused by contraction of the dilator muscle of the iris.[1] SSRIs can have some effect on the dilator muscle of eye and in clinical practice ocular side effects of SSRI are rarely encountered.

Case report

Mr Y, 30 years old male, 12th pass, married, tailor by profession, belonging to lower socioeconomic strata came to psychiatry outpatient department (OPD) with the presenting complaints of pervasive low mood, decreased work interest, thoughts of worthlessness, occasional hopelessness, tearfulness, and decreased sleep for last one month. There was no history of any precipitating or perpetuating factor, suicidal ideation, significant anxiety symptoms, substance abuse, seizure disorder, or head injury.

He had similar episode two years back which had lasted for four months. He had received treatment with fluoxetine in adequate doses along with benzodiazepine in tapering doses for a period of one year and patient did not report any significant adverse effect to fluoxetine and patient attained remission. There was no history of psychiatric illness in his family. His premorbid functioning was well adjusted with no past history of medical and surgical illness. He was carrying out his job of tailor efficiently.

In view of good response to fluoxetine in the past episode, tab fluoxetine 20 mg along with clonazepam 0.5 mg was started for two weeks. On follow up visit on the 16th day, the patient reported subjective improvement in his target symptoms of depression but with additional complaint of sudden onset blurring of vision and photophobia on the 16th day of starting treatment. As reported by the patient on the 16th day in the morning hours when the patient tried to put the thread in the needle of his sewing machine, he was not able to focus clearly in the eye of the needle and was unsuccessful after repeated attempts. After that he tried to focus on minute embroidery works but could not visualise well. Patient rushed to the psychiatry OPD on the same day and reported this difficulty. Patient was thoroughly assessed for emergence of this ocular symptom and no other causative factor could be associated except the treatment with fluoxetine and clonazepam. Ophthalmology opinion was sought and near vision was found to be impaired. Fluoxetine was stopped immediately and asked the patient to review after five days. On follow up visit, patient reported complete recovery of his symptoms after three days of stopping the medication. Patient was switched to venlafexine as its affinity to serotonin and cholinergic receptor is weaker than fluoxetine.

Discussion

SSRI are known to cause various ocular adverse effects viz. mydriasis/blurring of vision, colour blindness, conjunctivitis,

retinopathy, optic neuritis, etc.[2] Tricyclic antidepressants, typical antipsychotics, and SSRIs can all cause mydriasis that is often transient and with no major consequences, but that can promote closure of angles in susceptible patients. In our case, the temporal relationship of starting of fluoxetine and development of mydriasis is clear and the latency of the symptom correlates with the mechanism of action of SSRIs, which induce a gradual rise in postsynaptic concentrations of serotonin through desensitisationof the feedback systems controlling the rate limiting enzymein serotonin synthesis.[2] Role of benzodiazepine in causing mydriasis is excluded as benzodiazepines are not known to cause this adverse effect in therapeutic doses.

Possible mechanisms

The exact mechanism of SSRI induced mydriasis remains speculative, but relationship between serotonin and mydriasis has been proven by many studies and experiments. In patients with serotonin syndrome, mydriasis is also known ocular sign.[3] In patients, administration of fenfluramine is associated with mydriasis, which induces release of serotonin.[4] Following are few hypothesis of SSRI induced mydrasis:

i. Mydriasis obviously can be explained via 5-HT1A receptor stimulation.[5] SSRI can cause mydriasis via 5HT1A receptor in ciliary muscle.
ii. General central nervous system (CNS) stimulatory effect of serotonin may be responsible for mydriasis.[5]
iii. Acute allergic reaction may be a possible mechanism, but in our case the onset was on 16th day, so this mechanism was of remote possibility.[5]
iv. Anticholinergic and adrenergic side effects of SSRI: Drugs with anticholinergic and adrenergic activity are known to cause mydriasis. SSRIs have comparatively weak anticholinergic and adrenergic activity amongst which paroxetine has the highest potential for these adverse effects.[6]

This case report pays focus on a rare adverse effect of fluoxetine- blurring of vision due to mydriasis. Review of available literature shows SSRI induced certain ocular side effects, but does not define any risk factor of patient likely to develop such adverse effects. Implication of presenting this case is to create awareness amongst doctors prescribing SSRI to counsel patient and to be vigilant regarding possibility of development of ocular side effect as this can be very troublesome to patient.

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