Visual Hallucinations After Duloxetine Use

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Duloxetine is a serotonin-norepinephrine reuptake inhibitor (SNRI) used in the treatment of various psychiatric disorders such as depressive disorder or anxiety disorder. It is also used effectively in the treatment of other pathologies such as diabetic peripheral neuropathic pain, fibromyalgia, chronic musculoskeletal pain, stress urinary incontinence, and chronic pain.[1–5] Its metabolism is mediated by cytochrome P450 (CYP) 2D6 and 1A2 enzymes in the liver. Therefore, in case of activation or inhibition of these enzymes, the effectiveness of the drug may be impaired, and side effects may occur.[6,7]

Case Report

A Brazilian 62-year-old woman was referred for a psychiatric consultation due to the presence of visual hallucinatory activity for approximately 2 months. The patient was being treated for systemic arterial hypertension with carvedilol 6.25 mg 1 + 0 + 1 and for dyslipidemia with simvastatin 20 mg 0 + 0 + 1, both were stabilized, and she had no history of follow-up in psychiatry. She had been prescribed a low dose of amitriptyline for fibromyalgia, but due to no clinical improvement, she started taking duloxetine 3 months before the first psychiatric consultation. She reported the appearance of visual hallucinations about 5 days after taking duloxetine and clinical worsening after increasing the dose of duloxetine to 60 mg. She described vivid images of scarabs and walls in the middle of roundabouts with complete insight of the hallucinatory nature of these episodes. They were not associated with hallucinations in other perception modalities, such as the tactile, or with auditory illusions, and there was no history of similar episodes or previous or current cognitive deficits. An analytic study was performed with complete blood count; tests for liver function, kidney function, electrolytes, glucose, blood lipids, and thyroid function; autoimmune study; and brain neuroimaging examination with no relevant findings. She was evaluated by the neurology department, but no organic cause was found that could explain the appearance of hallucinatory symptoms. After discontinuing duloxetine, full remission of the visual hallucinatory activity was observed. Based on these findings and the exact temporal appearance of the symptoms with the initiation and titration of duloxetine, it was considered that visual hallucination could be an adverse effect associated with duloxetine use.

Discussion

The mechanism behind visual hallucinations caused by duloxetine treatment is unknown; however, there are some possible explanations. The appearance of psychotic symptoms can be caused by serotonin reuptake inhibition directly inhibiting dopamine reuptake or by increasing dopamine levels, particularly in the ventral striatum, via 5-HT_2 and 5-HT_3 receptors.[8–10] There is also a theory stating that SNRIs can increase the amount of dopamine in the prefrontal cortex by inhibiting norepinephrine transporters.[9]

Because CYP2D6 is involved in duloxetine metabolism, concomitant use of duloxetine with inhibitors of CYP2D6 would be expected to result in higher concentrations of duloxetine. So, in this case, we hypothesize that the use of additional medications for the treatment of systemic arterial hypertension and dyslipidemia, which are CYP2D6 inhibitors, could have increased the blood level of duloxetine due to liver metabolic interaction and thus increased the risk of side effects, including visual hallucinations.[7]

There are few reported cases of visual hallucinations induced by duloxetine in the literature, and the neurobiological basis remains unknown, requiring further studies in this field.

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