HIGH-DOSE MIRTAZAPINE IMPROVES PAIN, CRYESTHESIA AND DYSKINESIAS IN PARKINSON'S DISEASE: A CASE REPORT

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Abstract

Introduction: Mirtazapine is a noradrenergic and specific serotonergic antidepressant, which is also used in the treatment of parkinsonian tremor, resting, and essential tremor and levodopa(L-DOPA)-induced dyskinesias.

Case report: We report the case of a patient with early-onset Parkinson's Disease, who exhibited dyskinesias, musculoskeletal pain, cramps, and cryesthesia whilst on carvidopa, levodopa and entacapone combination treatment. Upon intake of a high dose of mirtazapine, the aforementioned symptoms disappeared and did not reoccur with its continued use.

Conclusion: Mirtazapine may be useful in the treatment of L-DOPA-induced dyskinesias and may also ameliorate pain and other somatic symptoms that accompany PD, thereby increasing the overall quality of life of these patients.

Keywords: mirtazapine, Parkinson's disease, cryesthesia, dyskinesias.

Η ΥΨΗΛΗ ΔΟΣΗ ΜΙΡΤΑΖΑΠΙΝΗΣ ΒΕΛΤΙΩΝΕΙ ΤΟΝ ΠΟΝΟ, ΤΗΝ ΚΡΥΑΙΣΘΗΣΙΑ ΚΑΙ ΤΙΣ ΔΥΣΚΙΝΗΣΙΕΣ ΣΤΗ ΝΟΣΟ ΤΟΥ ΠΑΡΚΙΝΣΟΝ: ΑΝΑΦΟΡΑ ΠΕΡΙΠΤΩΣΗΣ

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Case report

Mirtazapine is a noradrenergic and specific serotonergic antidepressant, which is also used in the treatment of parkinsonian tremor, resting, and essential tremor and levodopa(L-DOPA)-induced dyskinesias [1]. Our report highlights the use of high-dose mirtazapine for the relief of musculoskeletal pain, cramps, L-DOPA-induced dyskinesias and cryesthesia in a patient with Parkinson's disease (PD).

A 55-year-old man with early-onset PD (at the age of 35) was admitted in our Department with asymmetrical PD (Hoehn and Yahr scale 3) with increased severity in his right side, which was later accompanied by balance disturbances. The initial treatment with a dopamine agonist was later enriched with a combination of carbidopa, L-DOPA (200 mg) and entacapone (5-6 times per day). Dyskinesias usually appeared approximately 30 minutes after administration of the drug and 30 minutes before the effect of the drug had ended. The Unified Parkinson's disease rating scale-Part III was 24, 30 minutes after the medication. The patient reported musculoskeletal pain, cramps, and cryesthesia, for which mirtazapine (30 mg, once daily) was administered. On his own initiative, he gradually increased his intake of mirtazapine, reaching a point where he was taking

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five 30 mg tablets per day, caused nightmares and urination urgency. The possibility that this overdosing could have been in the context of obsession, cannot totally been excluded. However, there was patient's compliance in the subsequent drug dosage reducing. The dose of mirtazapine was reduced to 90 mg, with subsequent disappearance of the nightmares. On intake of mirtazapine, dyskinesias, musculoskeletal pain, cramps and cryesthesia disappeared. Occasionally, the patient experienced urination urgency. The disappearance of these symptoms was recorded subjectively, via completion of a visual analogue scale, by the patient. The patient's score of <7 on the Hamilton Depression Rating Scale before treatment was initiated with mirtazapine, indicating the absence of major or depressive symptomatology.

Discussion

Mirtazapine has antinociceptive effect via acting on the $\kappa_3$opioid receptor subtype, combined with serotoninergic and noradrenergic receptors [1], and it is effective in the treatment of fibromyalgia and of pain in cancer patients [1]. We based our decision on initiating mirtazapine in this patient on a few previous reports [2,3] and this pathophysiological background, and this mechanism could explain the effectiveness of mirtazapine on musculoskeletal pain seen in our patient. The absence of depressive symptomatology before initiating mirtazapine use indicates that the effect on pain was due to mirtazapine's antinociceptive effect and was not related to its antidepressive properties or its ability to improve the somatic symptoms of depression.

Mirtazapine also attenuates the rate of dopaminergic cell loss in PD models, mediated via the 5-HT_{1A} receptors of astrocytes [4]. Mirtazapine is effective against PD psychosis and treatment-related hallucinations [5]. Godschalx-Dekker et al. also mentioned an improvement of the typical parkinsonian symptoms, besides the psychosis, upon mirtazapine administration[6].

Mirtazapine is in general considered a very safe antidepressant [1]. However, it has been associated with several movement disorders [7,8]. As such, the emergence of such symptoms upon mirtazapine initiation should be followed by prompt withdrawal of mirtazapine, and not be attributed to PD before that.

Conclusively, mirtazapine may be useful in the treatment of L-DOPA-induced dyskinesias and may also ameliorate pain and other somatic symptoms that accompany PD, thereby increasing the overall quality of life of these patients.

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