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Letter to the Editor

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Dopamine Dysregulation Syndrome after Deep Brain Stimulation of the Subthalamic Nucleus

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Dear Editor,

Dopamine dysregulation syndrome (DDS) is an uncommon complication of long-term dopamine replacement therapy that is seen in Parkinson patients (3–4%) (1). While the association between subthalamic nucleus deep brain stimulation (STN-DBS) and DDS is not fully known, a probable mechanism is abnormal dopamine oscillation to the nucleus accumbens and overstimulation of the mesolimbic system (2). Risk factors include high doses of levodopa, early onset of Parkinson's disease (PH), history of depression, and duration of PH (3).

This study presents a DDS case following STN-DBS. A male patient who started with a complaint of tremor in the left hand at the age of 27 in 2004 was diagnosed with tremor non-dominant idiopathic OH. He came to our hospital in 2009, and after that, he was monitored by our hospital. He received levodopa–carbidopa–entacapone and then apomorphine. The patient who became 34 years old in 2011 received DBS to STN in September 2011 because his motor complications did not recover despite receiving treatment. One month after the surgery, he came to our clinic with a history of taking levodopa at frequent intervals with a wanting he could not resist, uneasiness, and generalized severe involuntary movements (dyskinesia). His examination showed confusion and severe-generalized choreiform movements. He was hospitalized with a prediagnosis of DDS. His laboratory findings were normal. His clinical situation improved following an adjustment in the stimulator parameters, a decrease in the dose of drugs, and antipsychotic treatment.

These patients are inclined to take too much dopaminergic drugs to make motor and non-motor symptoms under control. DBS can cure, worsen, or have no effect on pre-operation DDS (4). There are studies in literature which report that this syndrome may be the first to arise following DBS for the subthalamic nucleus and globus pallidus (5,6).

Patients who undergo STN-DBS should be closely monitored, and patients and their relatives should be informed. In patients who develop DDS, dopamine replacement therapy should be prescribed in low doses; drugs such as apomorphine should be avoided, and treatments with long-term effects should be preferred.

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REFERENCES

1. Giovannoni G, O'Sullivan JD, Turner K, Manson AJ, Lees AJ. Hedonistic homeostatic dysregulation in patients with Parkinson's disease on dopamine replacement therapies. J Neurol Neurosurg Psychiatry 2000; 68:423-428. **[CrossRef]**
2. Evans AH, Lees AJ. Dopamine dysregulation syndrome in Parkinson's disease. Curr OpinNeurol 2004; 17:393-398. **[CrossRef]**
3. Lawrence AD, Evans AH, Lees AJ. Compulsive use of dopami- ne replacement therapy in Parkinson's disease: reward system gone awry? Lancet Neurol 2003; 2:595-604. **[CrossRef]**
4. Voon V, Potenza MN, Thomsen T. Medication related impulse control and repetitive behaviours in Parkinson's disease. Curr Opin Neurol 2007; 20:484-492. **[CrossRef]**
5. De la Casa-Fages B, Grandas F. Dopamine dysregulation syndrome after deep brain stimulation of the subthalamic nucleus in Parkinson's disease. Neurol Res Int 2012; 312:191-193. **[CrossRef]**
6. Lim SY, O'Sullivan SS, Kotschet K, Gallagher DA, Lacey C, Lawrence AD, Lees AJ, O'Sullivan DJ, Peppard RF, Rodrigues JP, Schrag A, Silberstein P, Tisch S, Evans AH. Dopamine dysregulation syndrome, impulse control disorders and punding after deep brain stimulation surgery for Parkinson's disease. J Clin Neurosci 2009; 16:1148-1152. **[CrossRef]**

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