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*Unexpected effects of levodopa therapy for Parkinson's disease.*

Parkinson's disease has been traditionally thought of as a dopaminergic disease in which cells of the substantia nigra pars compacta (SNc) die. However, accumulating evidence implies an important role for the serotonergic system in Parkinson's disease in general and in physiological responses to levodopa therapy, the first line of treatment. We use a mathematical model to investigate the consequences of levodopa therapy on the serotonergic system and on the pulsatile release of dopamine (DA) from dopaminergic and serotonergic terminals in the striatum. (Received August 12, 2013)