

Levodopa-Induced Dyskinesias Related to *Vicia faba* Ingestion in a Parkinson's Disease Patient

Dear Sir,

Levodopa-induced dyskinesias is a well-known side effect in patients with Parkinson's disease (PD). Several circumstances seem to play a role in its appearance, and some of them can go unnoticed. We want to exemplify the role of a commonly eaten bean, *Vicia faba*, as a natural source of levodopa. This could interfere with the control of motor symptoms in patients with PD.^[1]

We report an 81-year-old woman with PD and 7 years from symptoms onset. Her Hoehn and Yahr stage was 2.5, with no signs of cognitive decline and no other significant pathologies. She was on a stable antiparkinsonian drug regimen for the last six months: rasagiline 1 mg every 24 h, pramipexol 2.1 mg every 24 h, and a total daily amount of levodopa-carbidopa of 150–37.5 mg divided on three times a day (30 min before breakfast, lunch, and dinner). She presented well-tolerated motor fluctuations, as morning akinesia, without dyskinesias.

She came to the Emergency Department due to acute involuntary movements, accompanied by profound sweating, tachycardia, and anxiety. These symptoms appeared around 04:00 p.m. for two days in a row. On the first day, they slowly disappeared during the late evening and she woke up asymptomatic.

On the examination, the patient suffered from dyskinesias of her entire body, mainly neck, trunk, and limbs' chorea. There was no other abnormality on the neurological exam. She was afebrile, and her blood tests, including glucose, electrolytes, renal function, and hemogram, were normal.

The patient and her family refer to strict therapeutic compliance, with no changes during the last weeks and no other acute illnesses, such as infections or exacerbations. She only pointed out that, on both days, she ate around 200 g of fresh sauteed broad beans (*Vicia faba*), 1.5 h before the symptoms started. She did not eat that legume for the last 10 years.

Vicia faba in the Mediterranean basin, and *Mucuna pruriens* in the tropical regions, are the main food exponents that contain enough levodopa to be pharmacologically active in patients with PD.^[2]

Levodopa was first isolated by Gugghenheim in 1913 in broad beans, long before its pharmacological role in PD was discovered. Although its content is highly variable, the highest concentrations are found in the seedling, followed by the pod and fresh beans (0.5–1.0 mg/g). Its pharmacokinetics and pharmacodynamics are similar to synthetic levodopa preparations.^[1,3]

In our patient, the intake of 200 g of fresh beans could mean up to 200 mg of levodopa in a single dose, a much higher amount

than her usual dose (50 mg per lot). This amount of beans has no clinical repercussions in healthy people, but those PD patients in prolonged treatment with peripheral DOPA decarboxylase inhibitors can experience a significant increase in their levodopa plasma concentration. This may improve their motor symptoms but also produce secondary dyskinesias.^[1]

As for *Mucuna pruriens*, levodopa was isolated from its seeds as early as 1937. Although it is not a common culinary source, it has been traditionally used to treat tremor in Ayurvedic medicine.^[4] Its varieties may include higher amounts of levodopa than the Mediterranean bean, and its viability as a drug has begun to be evaluated in different studies.^[2,5] Its use could be an alternative in regions with easy access to this plant, but with low incomes for synthetic levodopa, obtaining good results in efficacy and safety.

In conclusion, we should not forget the content of natural levodopa in this family of vegetables (Fabaceae), given their possible effects and uses in patients with PD.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

This work has not received any private or institutional funding.

Conflicts of interest

We have no conflicts of interest to disclose. Patient informed consent has been obtained.

References

1. Ramírez-Moreno JM, Salguero Bodes I, Romaskevych O, Duran-Herrera MC. Consumo de habas (*Vicia faba*) y enfermedad de Parkinson: Una fuente natural de L-dopa a tener en cuenta. *Neurologia* 2015;30:375-6.
2. Rijntjes M. Knowing your beans in Parkinson's disease: A critical assessment of current knowledge about different beans and their compounds in the treatment of Parkinson's disease and in animal models. *Parkinsons Dis* 2019;2019:1349509. doi: 10.1155/2019/1349509.
3. Vered Y, Rabey JM, Palevich D, Grosskopf I, Harsat, A, Yanowski A, et al. Bioavailability of levodopa after consumption of *Vicia faba* seedlings by Parkinsonian patients and control. *Clin Neuropharmacol* 1994;17:138-46.
4. Cassani E, Cilia R, Laguna J, Barichella M, Contin M, Cereda E,

et al. Mucuna pruriens for Parkinson's disease: Low-cost preparation method, laboratory measures and pharmacokinetics profile. J Neurol Sci 2016;365:175-80.

5. Cilia R, Laguna J, Cassani E, Cereda E, Pozzi NG, Isaias IU, *et al.* Mucuna pruriens in Parkinson disease: A double-blind, randomized, controlled, crossover study. Neurology 2017;89:432-38.

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Access this article online	
Website: www.neurologyindia.com	Quick Response Code 
DOI: 10.4103/0028-3886.333436	

How to cite this article: Lambea-Gil A, María-Ángeles, Requena-Calleja, Horna-Cañete L. Levodopa-Induced Dyskinesias Related to *Vicia faba* Ingestion in a Parkinson's Disease Patient. Neurol India 2021;69:1878-9.

Submitted: 02-Jul-2020 **Revised:** 16-Jan-2021
Accepted: 17-Mar-2021 **Published:** 23-Dec-2021

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