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Mucuna beans administered through hydrogen-infused superheated steam in advanced Parkinson's disease

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ABSTRACT

This retrospective review on patients with Parkinson's disease, focusing on using mucuna beans (MB), its dosing, and administration methods. Two hundred patients taking 1–3 g of MP dissolved in hot water daily orally. Besides, MB administration via enema may be viable, especially when oral L-dopa efficacy is insufficient.

Mucuna beans (MB) are known for their high yield and nutrient content, containing L-dopa and essential amino acids. This makes them effective in treating Parkinson's disease (PD) and other neurological conditions [1,2]. However, the appropriate dosing regimen for MBs in patients with PD remains uncertain. MB derived products are commercially available, offering the option of roasting MBs in hydrogen superheated steam (International Patent Acquired [3]). This process yields a powder containing 25 mg of L-dopa per gram, referred to as "MB powder". The amount of L-dopa from MBs that is presumably required to achieve effects equivalent to those of standard anti-PD medications is threefold, with fewer side effects and reduced dyskinesia [4]. However, the symptomatic effects of such MB products derived through hydrogenated superheated steam remain unexplored. Given the progressive nature of PD and the declining effectiveness of conventional anti-PD drugs in advanced stages, the potential benefits of the superheated steam method could be substantial. Consequently, this study was conducted to examine the delivery routes and efficacy of MBs in patients with PD.

A market survey conducted at a retail store from 2022 to 2023 served as the basis for investigating the purchase history of MB products by patients with PD. The investigation focused on whether MB products were used in patients with PD, daily dosing patterns, and the specific administration method. If the patient was receiving MB products through any means other than oral administration, this was examined in detail including patients' clinical profile. Additionally, where applicable, the status of PD before and one month after the administration of MB products was obtained retrospectively. Furthermore, any reported potential adverse events by the patients were also documented. This study was approved by the Ethics Committee of the Neshige Neurology Clinic (C-007).

More than 200 patients had purchased and used MB powder products. These patients usually consumed 1–3 g of MB powder dissolved in approximately 500 ml of hot water, which was gradually administered over the course of the day. Some of them reported that the oral intake of MB powder was efficacious, contributing to improvements in both physical and mental health along with alleviation of constipation. No adverse events were reported. Within this cohort, four cases involving the use of MB powder via rectal administration were identified. They reported having received an MB powder enema because they had heard, through word of mouth, about the efficacy of this method of administration. These were cases in which symptom assessment could be performed incidentally before and after the administration (Table 1) during the routine visits. In Cases 1 and 2, a visiting nurse prepared 3–4 g of MB powder in 60 ml of hot water for enema administration, with post-administration instructions to remain recumbent for at least 30 min. Followings are the patients' baseline profiles: Case 1, a 72-year-old female, presented with advanced Parkinsonism and post-deep brain stimulation (DBS) dyskinesia. She needed help with mobility and regularly used laxative suppositories because of non-severe constipation. Before administering MB powder enema, she had bowel movements weighing approximately 50 g/day. Case 2, a 71-year-old female patient with severe Parkinsonism treated with DBS. Her symptoms improved, but she remained bedridden and required assistance. She could walk 20–40 m on level ground using a shopping cart. She had a bowel movement of roughly 50 g with laxatives and glycerin enema. Case 3, a 65-year-old female patient with pronounced wearing-off and dyskinesia. She managed to walk 200 m with a cart during on periods, which lasted two hours. Off-periods rendered her immobile with severe tremors, anxiety, and panic attacks. Mornings were particularly difficult with intense off symptoms and dystonia in both feet. Her severe constipation lasted often for two weeks. The prospect of DBS was daunting because of the patient's anxiety and lack of caregiver support. Case 4, a 65-year-old male patient maintained an active lifestyle and walked several kilometers daily without wearing-off symptoms or dyskinesia with bowel movements every three days.

Although we have not been able to properly assess the treatment's efficacy, our preliminary findings, based on occasional interviews, might suggest that MB powder has potential efficacy in patients with advanced PD. As L-dopa is absorbed from the intestine, rectal administration of MB powder would also benefit those with parkinsonism. We posit that the colon absorption of mucuna contributes to the observed therapeutic effects. Additionally, these benefits may be ascribed not only to L-dopa but also to the neuroprotective components within MBs, such as ursolic and betulinic acids, which may exert therapeutic effects in PD

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Table 1
Change in UPDRS score following the Mucuna beans use.

	UPDRS Part I	Part II	Part III	Part IV	Total
Case 1	18→10	47→31	118→76	15→0	198→117
Case 2	22→11	27→18	50→32	7→0	106→61
Case 3	23→11	29→28	54→39	13→9	119→87

[1,5].

The progression of PD typically diminishes gastric motility, which in turn delays the gastric emptying of anti-PD medications [6]. In advanced PD, variable absorption of these medications can lead to fluctuations in blood levels, causing the wearing-off phenomenon and dyskinesia. However, following enema administration of MB powder, we observed an enhanced absorption of mucuna, which appeared to alleviate these complications. MB powder enemas may show promise when conventional treatments reach their therapeutic limits. Constipation is often implicated as a worsening factor in Parkinsonism [7]. In our study, the MB powder enema proved beneficial for Parkinsonism in the absence of constipation but not during periods of severe constipation, suggesting that MB powder absorption may be compromised during such times, diminishing its efficacy.

Commercially available MB supplements have been criticized for their inconsistent L-dopa content [8]. In response, MB powder was developed using a patented method to obtain a defined amount of L-dopa by roasting beans with hydrogen water vaporization. Hydrogen water has antioxidative properties, primarily its capacity to neutralize "reactive oxygen species," which are implicated in aging and various diseases. The vaporization process occurs under low-oxygen conditions, mitigating the oxidative degradation of vital nutrients such as L-dopa and essential amino acids. Therefore, it is crucial to identify patients who are optimal candidates for MB powder enemas, and rigorously examine long-term effects and potential side effects. It is also imperative to evaluate the comparative advantages of hydrogen water vaporization against other roasting methods.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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We thank all the patients for their participation in this study. Our study adhered to the Declaration of Helsinki. The Ethical Guidelines for Medical and Health Research Involving Human Subjects.

Author Roles

The corresponding author contributed to the conception, data curation, and execution of the research project, and writing - original draft; and review & editing.

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