

Intranasal bromocriptine in Parkinson's disease: a nasocerebral leap in dopaminergic therapy

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Dear Editor,

We write to bring to the foremost awareness and consideration, a novel modality of Parkinson's disease (PD) treatment. This novel, non-invasive brain-targeted therapy, offers a promising milieu for the clinical management of PD.

PD remains one of the most debilitating neurodegenerative disorders, characterized by dopaminergic neuronal loss in the substantia nigra and the consequent motor and non-motor manifestations.¹ Despite pharmacologic advances, oral dopaminergic therapies, including bromocriptine, have been limited by erratic gastrointestinal absorption, extensive first-pass metabolism, and dose-dependent adverse effects such as nausea, hypotension, and neuropsychiatric symptoms.²

In this context, the intranasal route of bromocriptine (Bromocriptine Mesylate Loaded Nanostructured Lipid Carriers) administration presents a transformative pharmacotherapeutic proposition using precision nanomedicine as its vector. The nasal mucosa offers a direct conduit to the central nervous system via the olfactory and trigeminal pathways, bypassing the blood-brain barrier and hepatic metabolism.³ This not only enhances central bioavailability but also shortens onset time and reduces systemic side effects. A visual illustration of this is displayed below in [Figure](#).

Preclinical studies have demonstrated superior dopaminergic receptor activation and behavioral improvement following intranasal bromocriptine delivery compared to its oral counterpart.⁴ Additionally, early pharmacokinetic data indicate that nasal formulations achieve therapeutically relevant cerebrospinal fluid concentrations within minutes,

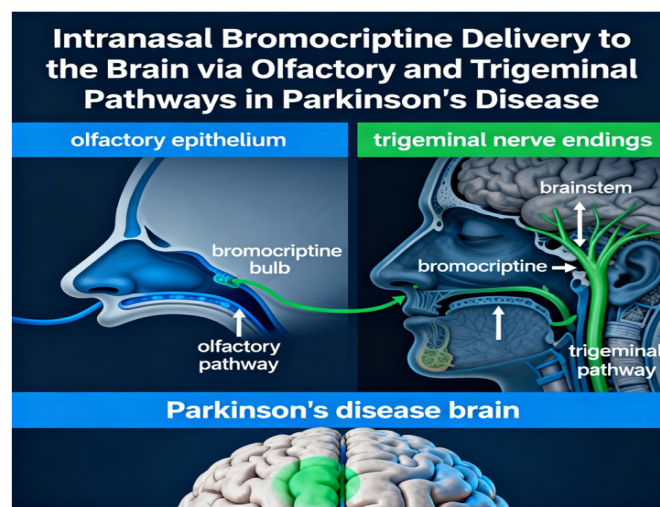


Figure. A visual illustration of the delivery mechanism of intranasal bromocriptine

suggesting potential utility for both continuous symptom management and acute "off" episodes in PD.^{3,4}

While the therapeutic rationale is compelling, several translational challenges warrant attention. These include optimizing formulation stability, minimizing mucociliary clearance, improving patient tolerability, and ensuring long-term nasal safety. Addressing these issues will be essential before large-scale trials can fully validate efficacy and safety.

We therefore, using this journal as a vantage point of outreach to strategic stakeholders in the neurobiological landscape, advocate for rigorous clinical investigations

that will check and confirm the therapeutic promise of intranasal bromocriptine as an adjunct or alternative to established dopaminergic regimens. This approach, if successful, could herald a “nasocerebral” era of precision dopaminergic modulation, optimizing therapeutic outcomes while minimizing systemic burdens across several affected demographics in developed and developing nations.

ETHICAL DECLARATIONS

Peer Review Process

This letter was externally peer-reviewed.

Conflict of Interest

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Author Contributions

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