The Role of Pramipexole in Early Parkinson's Disease: A review of literature

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Introduction

Early-onset Parkinson's Disease (EOPD)[1,2]

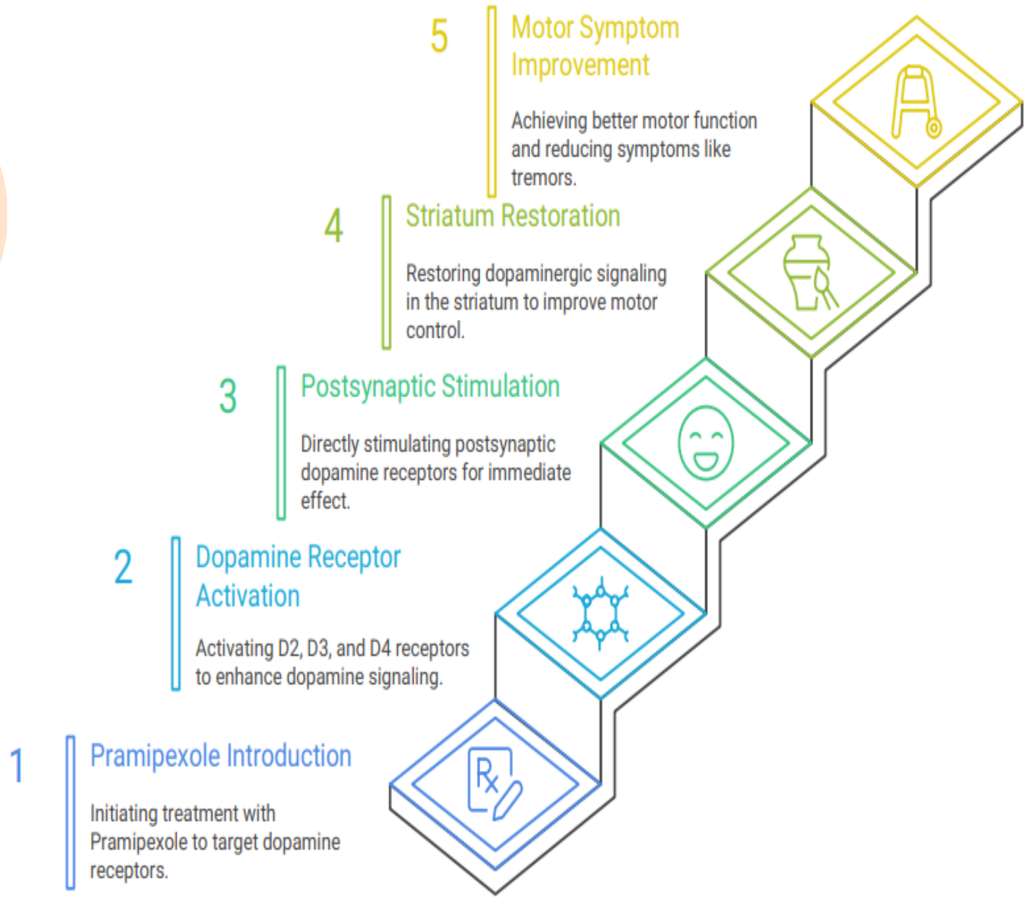
- EOPD is defined as PD with an age of onset after 21 years and before 50 years.
- EOPD accounts for 5-15% and 40-45% of all PD cases globally and in India, respectively.
- Bradykinesia, rest tremor, muscle rigidity, and postural instability are the most common motor symptoms in India.

Challenges of Levodopa[3]

- Levodopa is widely considered one of the most effective treatments for PD, but its use is often delayed because of drug-induced dyskinesias and wearing-off, and on-off fluctuations

Pramipexole: Dopamine agonist[4,5]

- Pramipexole is a non-ergoline, D3 receptor-preferring dopamine agonist approved for the treatment of PD as monotherapy in early PD
- It delays the occurrence of motor complications induced by levodopa



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5. The Parkinson Study Group PramiBID Investigators. Twice-daily, low-dose pramipexole in early Parkinson's disease: A randomized, placebo-controlled trial. Movement Disorders. 2010 Oct 5;26(1):37–44.

Materials and Methods

Existing literature was screened to evaluate the impact of Pramipexole for Parkinson's disease management

Primary research articles were obtained from PubMed and Google Scholar.

Keywords used for the search: Pramipexole, Non-ergot dopamine agonist, Early Parkinson's disease, UPDRS II + III (Unified Parkinson's Disease Rating Scale).

Search Timeframe: 2006 - 2024

Aim

To determine the effectiveness of Pramipexole on motor function as assessed by UPDRS motor examination score

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Results of Pramipexole in Early Parkinson's Disease

	Study name	Baseline UPDRS II+III	UPDRS II+III endpoint	Mean difference	%age reduction in score
1	Hauser et al (2014) 33 weeks, N= 590 Extension study	30	20.7	-9.3	31%
2	Poewe et al (2011) 33 weeks, N=539 RCT	29.7	21.5	-8.2	27.6%
3	Rascol et al (2010) 9 weeks, N=169 RCT	21.5	19.9	-1.6	7.4%
4	Seiple et al (2016) 1 year, N=121 Comparator trial with ropnirole	28.8	24.7	-4.1	14.2%
5	Wang et al (2014) 18 weeks, N=475 RCT	44.9	31.6	-13.3	29.6%

Adverse effects

Studies have shown the most common AEs were: nausea (~28%), dizziness (~25%), somnolence (~22%), constipation (~14%), insomnia (~17%), hallucinations (~9%). **Discontinuations** for AEs occur (~12% in trials)—nervous-system effects (hallucinations, dizziness, somnolence, extrapyramidal symptoms) are common reasons

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2. Barone P, Poewe W, Albrecht S, Debieuvre C, Massey D, Rascol O, et al. Pramipexole for the treatment of depressive symptoms in patients with Parkinson's disease: a randomised, double-blind, placebo-controlled trial. The Lancet Neurology. 2010 Jun;9(6):573–80.
3.The Parkinson Study Group PramiBID Investigators. Twice-daily, low-dose pramipexole in early Parkinson's disease: A randomized, placebo-controlled trial. Movement Disorders. 2010 Oct 5;26(1):37–44.
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5. Seiple W, Jennings D, Rosen RB, Borchert L, Canale L, Fagan N, et al. Ophthalmologic Baseline Characteristics and 2-Year Ophthalmologic Safety Profile of Pramipexole IR Compared with Ropinirole IR in Patients with Early Parkinson's Disease. Parkinson s Disease. 2016 Jan 1;2016:1–14.

Conclusion

- Clinical trials consistently demonstrate that pramipexole significantly improves motor symptoms in early PD, as evidenced by improvements in UPDRS scores with a range of 4-13 point reduction in duration range of 9 weeks-1 year
- Pramipexole is generally well tolerated, with dose-dependent side effects such as nausea, somnolence, and impulse control disorders
- Pramipexole can be effective option in early PD management as it improves motor symptoms, delay the need for levodopa and address non-motor symptoms like depression and sleep disturbances
- Overall, pramipexole is an effective and well-tolerated option for the management of early PD

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