

Tavapadon, a novel therapeutic agent for Parkinson's disease: A Systematic Review of Randomized Controlled Trials

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Abstract:

Tavapadon is a novel, highly selective D1/D5 partial dopamine agonist with little activity at D2/D3 receptors. This systematic review was undertaken to assess the efficacy and safety of tavapadon in Parkinson's disease and to better define its overall therapeutic potential. Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 guidelines were implemented during the conduct of this systematic review and were prospectively registered with the International Prospective Register of Systematic Reviews (PROSPERO) under registration number CRD420261489191. All RCTs on Tavapadon in Parkinson's disease from 2010 to 2026 were searched and evaluated against specific eligibility criteria and were included in this systematic review. The part III MDS-UPDRS ranged from -9.0 to 11 for Tavapadon and from -4.3 to 4.6 for placebo. For part I MDS-UPDRS, Tavapadon ranged from -0.2 to 1.4 and Placebo ranged from 0 to 1. Part II and part III combined MDS-UPDRS, Tavapadon ranged from -10.3 to 10.3 and placebo ranged from -1.2 to 4.7. Tavapadon showed more adverse effects compared to placebo viz. nausea, headache, dry mouth, tremors, constipation, dyspepsia, salivary hypersecretion, fatigue, dizziness and hallucinations whereas placebo showed more tremors. It is evident that the novel drug Tavapadon has shown improved motor as well as Unified Parkinson's Disease Rating Scale scores as when compared to the placebo. Similarly Tavapadon has also shown to have a host of side effects which are expected in drugs acting on the dopaminergic receptors. Further investigation will be needed to take place in order to establish the clinical efficacy as well as the adverse effects profile of Tavapadon and traditional Dopaminergic drugs in head to head comparison studies.

Keywords: Tavapadon, Parkinsonism, Parkinsonian disease, PF-06649751, CVL-751

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Introduction

Parkinson's disease is a chronic, progressive and disabling neurodegenerative disorder characterized by degeneration of dopaminergic neurons in the substantia nigra pars compacta, which subsequently leads to striatal dopamine depletion and progressive impairment of motor function [1-3]. The standard treatment aims at administering synthetic Dopamine precursor levodopa to activate D1 and D2 receptors and restore dopaminergic functions [3]. Although Levodopa is fast at improving motor symptoms, long term treatment can cause fluctuating motor responses and dyskinesias in many individuals [1].

Other current pharmacological treatment, besides dopamine precursors (levodopa), that are available are: Dopamine agonist (eg pramipexole, ropinirole, rotigotine, apomorphine), Monoamine Oxidases B Inhibitors (rasagiline, selegiline, safinamide), anticholinergics (eg benztropine), Catechol-O-Methyl Transferase inhibitors (eg entacapone, opicapone), N-Methyl-D-Aspartate type glutamate receptor antagonists (eg amantadine) and A2A Antagonist (eg istradefylline). Non pharmacological treatment include Deep Brain stimulation [2]. In terms of major Adverse effects of the drugs, the currently approved DAs are associated with reduced dyskinesia compared to Levodopa [5]. The D2/D3 receptor agonists can however produce non motor adverse effects compared to Dopamine precursors [4].

The Dopamine receptor agonists (DAs) are classified into different groups based on affinity for their dopamine receptors coupled to G proteins: D1 like (D1 and D5 receptor subtypes) and D2 like (D2, D3 and D4 Receptor subtypes). D1 like and D2 like differ in terms of signalling pathways: D1 are coupled to Gs pathways and have a stimulatory effect on Adenylate cyclase whereas D2 are receptors coupled to Gi receptors thus inhibiting Adenylate cyclase [6].

Tavapadon (Drug code: PF-06412562), is a moderately potent and highly selective D1/D5 Dopamine receptor partial agonist [7]. It is a novel drug that was shown to improve motor control when taken once per day orally. It was also observed that Tavapadon may decrease the likelihood of Adverse effects seen with current D2/D3 DAs drugs [1]. This drug is a new class of non catechol based agents created to prevent pharmacological and tolerability concerns with previously discontinued D1 agonists. PF-06649751 has shown safety and effectiveness in short-term phase I clinical trials in subjects with idiopathic Parkinson's disease, based on the Movement Disorder Society Unified Parkinson's Disease Rating Scale (MDS-UPDRS) Part III scores [3].

Across these trials, most adverse events were mild to moderate in severity, although they were reported more frequently with Tavapadon as opposed to the placebo and its long-term safety profile has yet to be fully established [1,4,5]. Accordingly, this systematic review was undertaken to assess the efficacy and safety of tavapadon in Parkinson's disease and to better define its overall therapeutic potential.

Methodology

This systematic review was performed with a frequentist approach. Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 guidelines were implemented during the conduction of this systematic review (Figure 1).

Literature search

A thorough search was done on PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), Turning Research into Practice (TRIP) and Google Scholar in order to identify relevant manuscripts. A combination of keywords and Boolean operators was used for data extraction: (Parkinsonism OR Parkinsonian disease) AND (Tavapadon OR PF-06649751 OR CVL-751). The strategy employed in the search, along with the total number of articles screened, is presented as shown in Table 1. **Registration and Protocol**

The review followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines (PRISMA) and was prospectively registered with the International Prospective Register of Systematic Reviews (PROSPERO) under registration number CRD420261489191. The full protocol remains available through PROSPERO.

PICOS Framework

The eligibility criteria for this systematic review and meta-analysis were defined according to the PICOS framework (Population, Intervention, Comparator, Outcomes, Study design) to ensure a structured and reproducible study selection process.

Population (P): All patients diagnosed with Parkinson's disease

Intervention (I): Tavapadon.

Comparator (C): Placebo

Outcome (O): The primary outcomes were Primary outcomes MDS-UPDRS, Modified H and Y.

Secondary outcomes were adverse Effects.

Study design(S): Randomized Controlled Trials (RCTs) published in English between 2010 and 2026.

Inclusion criteria

All RCTs on Tavapadon in Parkinson's disease from 2010 to 2026 were searched and evaluated against specific eligibility criteria and were included in this systematic review. All

patients diagnosed with any diseases related to Parkinson's disease and using Tavapadon as treatment. Full-text articles were included and assessed for eligibility in this systematic review. All the RCTS available in English literature were included in the study.

Exclusion criteria

Data resources, including non-randomized controlled trials, cohort studies, case-control studies, cross-sectional studies, case series, case reports, in vitro studies, animal experiments, commentaries, letters to the editor, expert opinions, and review articles, were omitted from this systematic review.

Data synthesis

Data extraction was conducted on the relevant titles. The titles were initially screened based on their abstracts. Thereafter, the full texts of the examined RCT titles that met the eligibility requirements were considered for the final selection. All articles were screened independently by MK and IB and discrepancies were reconciled by JR. The extracted data included the study authors and year, type of study, sample size, ages, MDS-UPDRS change from baseline, Least Square mean and the adverse effects encountered.

Methodology Quality Assessment

The quality assessment of the selected RCTs was assessed independently. The Cochrane risk-of-bias tool for randomized trials (RoB2) was used for quality assessment. The RoB2 tool is best suited and implemented to assess the domains at low, unclear, and high risk of bias. The Risk-of-bias Visualization (ROBVIS) tool is a web-based application program that was used to generate the traffic light plots and the weighted bar plots.

Results

Study Selection

The initial database search yielded 223 results, among which 204 results were removed as they fell outside the scope of the research objective. After removal of 8 duplicates by EndNote, the remaining 11 records were retrieved for screening and assessed based on title and abstract. Of these, 6 articles were excluded for the following reasons: inappropriate study design, wrong population and outcome detailed absent. Subsequently, 5 RCTs were deemed eligible to be included. A total of 13 records were identified and retrieved through backward citation chasing. All 13 articles were rejected due to the factors outlined below: not relevant, duplicates and studies already included during the initial database search.

Ultimately, 5 RCTs satisfied the inclusion criteria and were considered suitable for the systematic review.

Quality assessment

The selected articles were critically appraised, with Figures 2-3 illustrating the results. The risk of bias assessment demonstrated an overall favourable methodological profile across the RCTs. Three studies (60%) were judged to have a low overall risk of bias, while two studies (40%) had some concerns. All studies demonstrated low risk of bias in the randomization process, deviations from intended interventions and missing outcome data. However, some concerns were identified in the measurement outcomes and selection of the reported results. No study was judged to have a high overall risk of bias. The robvis tool was used to generate the traffic light plot (figure 2) and the summary/weighted bar plot (figure 3) depicts the risk of bias.

Characteristics of Included Studies

Table 1 shows Author, Study year, study Design, Country and dose of Intervention and control group. All the Studies are RCTs that involved Tavapadon and Placebo and have been conducted in USA, Australia, France, Germany, Hungary, Italy, Poland, Serbia, South Korea, Spain, Taiwan, Thailand and Ukraine. The dose of drugs used for intervention ranged from 0.25 mg to 30 mg.

Table 2 shows Age/years and MDS-UPDRS Change from baseline, Least Square mean for part I, part II, part III and part II and III combined. The age group ranged from 62 to 78 years old. The part III MDS-UPDRS ranged from -9.0 to 11 for Tavapadon and from -4.3 to 4.6 for placebo. For part I MDS-UPDRS, Tavapadon ranged from -0.2 to 1.4 and Placebo ranged from 0 to 1. Part II and part III combined MDS-UPDRS, Tavapadon ranged from -10.3 to 10.3 and placebo ranged from -1.2 to 4.7.

Table 3 shows Adverse drug reaction (ADR) for both Tavapadon and placebo. Tavapadon caused more adverse effects as compared to the placebo and showed more nausea, headache, dry mouth, tremors, constipation, dyspepsia, salivary hypersecretion, fatigue, dizziness, and hallucination whereas the placebo showed more tremors.

Table 1: Search Strategy and various Databases used

Date and time of search	Database Used	MeSH terms used	Filters Used	Initial number	Omitted	Abstracts screened
20/08/26 at 00:15	Pubmed	((Parkinsonian Disorders) OR (Recessive Parkinsonism, Autosomal)) OR (Parkinsonism, Autosomal Recessive)) OR (Autosomal Recessive Parkinsonism)) OR (Parkinsonism, Autosomal Dominant)) OR (Dominant Parkinsonism, Autosomal)) OR (Autosomal Dominant Parkinsonism)) OR (Parkinsonism, Familial Juvenile)) OR (Juvenile Parkinsonism, Familial)) OR (Familial Juvenile Parkinsonism)) OR (Autosomal Recessive Juvenile Parkinsonism)) OR (Parkinson Disease 2)) OR (Parkinson Disease Autosomal Recessive, Early Onset)) OR (Parkinson Disease, Juvenile, Autosomal Recessive)) OR (Parkinsonism, Early-Onset, With Diurnal Fluctuation)) OR (Parkinson Disease 2, Autosomal Recessive Juvenile)) OR (Parkinson Disease, Familial, Autosomal Recessive)) OR (Familial Parkinson Disease, Autosomal Recessive)) OR (Parkinsonism, Juvenile, Autosomal Recessive)) OR (Juvenile Parkinsonism, Autosomal Recessive)) OR (Juvenile Parkinson Disease, Autosomal Recessive)) OR (Chromosome 6 Linked Autosomal Recessive Parkinsonism)) OR (Autosomal Recessive Juvenile Parkinson Disease)) OR (Parkinson Disease, Juvenile)) OR (Juvenile Parkinson Disease)) OR (Parkinsonisms, Juvenile)) OR (Juvenile Parkinsonisms)) OR (Juvenile Parkinsonism)) OR (Parkinsonism, Juvenile)) OR (Parkinson Disease, Experimental)) OR (MPTP Induced Experimental Parkinsonism)) OR (MPTP-Induced Experimental Parkinsonism)) OR (Parkinsonism, MPTP-Induced Experimental)) OR (Experimental Parkinsonism, MPTP Induced)) OR (Experimental Parkinsonism, MPTP-Induced)) OR (Experimental Parkinsonism)) OR (Parkinson Diseases, Experimental)) OR (Experimental Parkinson Diseases)) OR (Diseases, Experimental Parkinson)) OR (Experimental Parkinson Disease)) OR (Parkinsonisms, Experimental)) OR (Experimental Parkinsonisms)) OR (Parkinsonism, Experimental)) OR (Parkinsonism, Juvenile, Autosomal Dominant)) OR (Parkinson Disease, Juvenile, Autosomal Dominant)) OR (Parkinson Disease, Autosomal Dominant, Juvenile)) OR (Juvenile Parkinson Disease, Autosomal Dominant)) OR (Autosomal Dominant Juvenile Parkinsonism)) OR (Juvenile Parkinsonism, Autosomal Dominant)) OR (Autosomal Dominant Juvenile Parkinson Disease)) OR (Parkinsonian Syndromes)) OR (Parkinsonian Diseases)) OR (Parkinsonian Syndrome)) OR (Parkinsonism)) AND (tavapadon)	RCT, English, Humas, From 2010 to 2026	19	12	7
20/08/26 at 00:20	Cochrane	MeSH descriptor: [Parkinsonian Disorders] explode all trees AND MeSH descriptor: [Dopamine Agonists] explode all trees	From 2010 to 2026	1	0	1
20/08/26 at 00:25	TRIP	(Parkinsonism OR Parkinsonian disease) AND (Tavapadon OR PF-06649751 OR CVL-751)	From 2010 to 2026	30	22	8
20/08/26 at 00:30	Google scholar	(Parkinsonism OR Parkinsonian disease) AND (Tavapadon OR PF-06649751 OR CVL-751)	-	173	170	3
TOTAL				223	204	19

Table 2: Study Characteristics, Patients' Demographics, Intervention and Control Details

Author, study, year	Study Design	Sample size	Country	Intervention	Control	Dose of the intervention group	Dose of control group
Papapetropoulos et al., 2018 [7]	RCT	26	USA	Tavapadon	Placebo	30mg + 20 mg	NA
Riesenberg et al., 2020 [3]	RCT	57	USA, France, Germany, Israel	Tavapadon	Placebo	0.25 to 15 mg	NA
Pahwa et al., 2026 [5]	RCT	529	NA	Tavapadon	Placebo	15 mg	NA
Fernandez (a) et al., 2026 [1]	RCT	507	USA, Australia, France, Germany, Hungary, Italy, Poland, Serbia, South Korea, Spain, Taiwan, Thailand, Ukraine	Tavapadon	Placebo	5mg to 15 mg Orally	NA
Fernandez (b) et al., 2026 [4]	RCT	304	USA, Australia, France, Germany, Hungary, Italy, Poland, Serbia, South Korea, Spain, Taiwan, Thailand, Ukraine	Tavapadon	Placebo	5mg to 15 mg Orally	NA

NA: Not available

Table 3: Age/years and MDS-UPDRS Change from baseline, Least Square mean for part I, part II, part III and part II and III combined

Author, study year	Age/years		MDS-UPDRS Change from baseline, Least Square mean			
	Tavapadon group	Placebo group	Part I	Part II	Part III	Part II and part III combined
Papapetropoulos et al., 2018 [7]	63 ± 11	63 ± 11	NA	NA	Tavapadon:-10.6	NA
Riesenberg et al., 2020 [3]	62 ± 17	62.5 ± 15.5	NA	NA	Tavapadon:-9.0 (1.54) Placebo:-4.3 (1.65)	NA
Pahwa et al., 2026 [5]	63.8 ± 9.4	63.5 ± 9.6	Tavapadon:0.4 ± 0.6 Placebo:0.5 ± 0.5	NA	Tavapadon:8.55 ± 1.35 Placebo:0.85 ± 1.25	NA
Fernandez (a) et al., 2026 [1]	64.9 ± 8.5	64.9 ± 8.5	Tavapadon:1.4 Placebo:0.1	NA	Tavapadon: 7.0 Placebo: 4.6	Tavapadon: 8.4 Placebo: 4.7
Fernandez (b) et al.,2026 [4]	62.9 ± 9.2	62.9 ± 9.2	NA	NA	NA	Tavapadon: 10.3 Placebo: 1.2

NA: Not available

Table 4: Adverse drug reaction (ADR) of Tavapadon and placebo

Author, study year	ADRs	
	Tavapadon	Placebo
Papapetropoulos et al., 2018 [7]	Nausea 1/13	Nausea 1/13
	Vomiting 1/13	Fatigue 2/13
	Fatigue 1/13	
Riesenberg et al., 2020 [3]	Nausea 9/29 (31.0)	Nausea 2/28 (7.1)
	Headache 7/29 (24.1)	Headache 2/28 (7.1)
	Dry mouth 5/29 (17.2)	somnolence 1/28 (3.6)
	somnolence 4/29 (13.8)	Tremors 2/28 (7.1)
	Tremors 4/29 (13.8)	Back pain 1/28 (3.6)
	UTI 3/29 (10.3)	Fatigue 3/28 (10.7)
	Decreased appetite 3/29 (10.3)	Nasopharyngitis 1/28 (3.6)
	arthralgia 3/29 (10.3)	Dizziness 1/28 (3.6)
	Hot flush 3/29 (10.3)	Anxiety 1/28 (3.6)
	Back pain 3/29 (10.3)	Insomnia 2/28 (7.1)
	Fatigue 3/29 (10.3)	Dyspepsia 2/28 (7.1)
	Dysgeusia 2/29 (6.9)	diarrhea 3/28 (10.7)
	Dystonia 2/29 (6.9)	
	Hypoesthesia 2/29 (6.9)	
	Paraesthesia 2/29 (6.9)	
	Abnormal dreams 2/29 (6.9)	
	Depression 2/29 (6.9)	
	Irritability 2/29 (6.9)	
	Restlessness 2/29 (6.9)	
	Hypotension 2/29 (6.9)	
	Nasopharyngitis 2/29 (6.9)	
	Dizziness 2/29 (6.9)	
	Anxiety 2/29 (6.9)	
	Insomnia 2/29 (6.9)	
	Dyspepsia 1/29 (3.4)	

	diarrhea 1/29 (3.4)	
Pahwa et al., 2026 [5]	Nausea 48/177 (27.1)	Nausea 3/175 (1.7)
	Dizziness 21/177 (11.9)	Dizziness 8/175 (4.6)
	Headache 37/177 (20.9)	Headache 9/175 (5.1)
	Dysgeusia 14/177 (7.9)	Fatigue 6/175 (3.4)
	Fatigue 16/177 (9.0)	Vomiting 1/175 (0.6)
	Vomiting 9/177 (5.1)	Anxiety 5/175 (2.9)
	Dry mouth 9/177 (5.1)	Orthostatic Hypotension 2/175 (1.1)
	Anxiety 9/177 (5.1)	Hypotension 4/175 (2.3)
	Orthostatic Hypotension 8/177 (4.5)	Somnolence 6/175 (3.4)
	Hypotension 9/177 (5.1)	
	Hallucination 11/177 (6.2)	
	Somnolence 5/177 (2.8)	
	Impulse control disorder 1/177 (0.6)	
Fernandez (a) et al., 2026 [1]	Nausea 36/251 (14.3)	Nausea 11/254 (4.3)
	Dyskinesia 25/251 (10.0)	Dyskinesia 4/254 (1.6)
	Dizziness 19/251 (7.6)	Dizziness 8/254 (3.1)
	Headache 17/251 (6.8)	Headache 7/254 (2.8)
	Fall 16/251 (6.4)	Fall 13/254 (5.1)
	Orthostatic hypotension 15/251 (6.0)	Orthostatic hypotension 3/254 (1.2)
	Hallucination 14/251 (5.6)	Hallucination 3/254 (1.2)
	Somnolence 13/251 (5.2)	Somnolence 11/254 (4.3)
Fernandez (b) et al., 2026 [4]	Nausea 45/151 (30)	Nausea 5/153 (3)
	Headache 25/151 (17)	Headache 8/153 (5)
	Dizziness 24/151 (16)	Dizziness 5/153 (3)

Figure 1: PRISMA 2020 flowchart

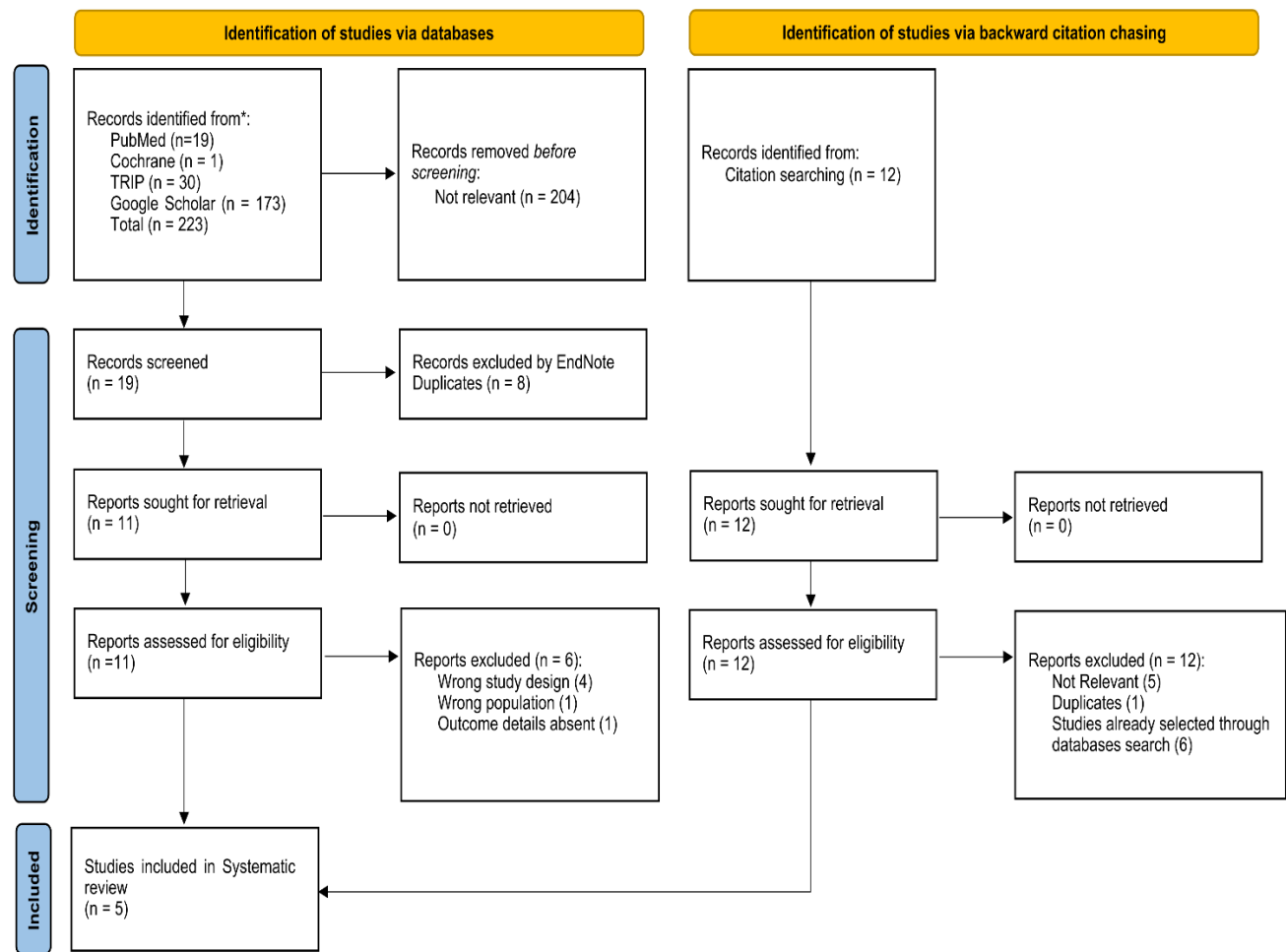


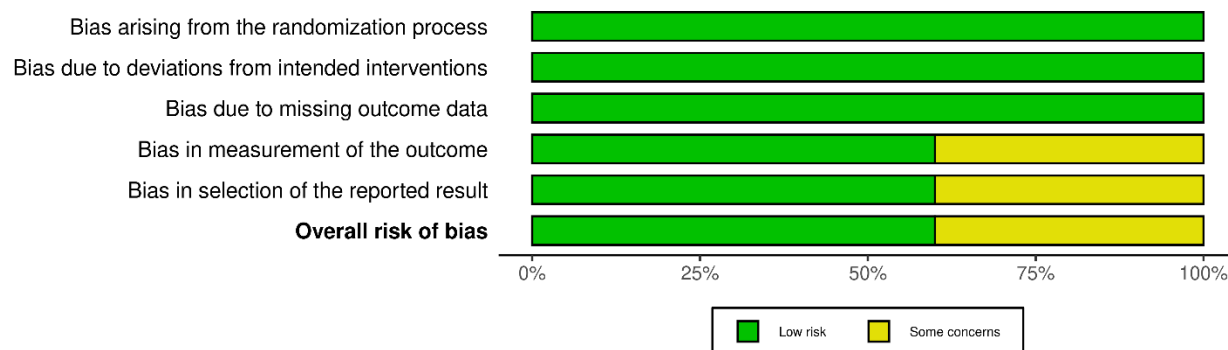
Figure 2: Traffic Light Plot for Risk of Bias

		Risk of bias domains				
		D1	D2	D3	D4	D5
Study	Papapetropoulos et al.,2018	+	+	+	+	+
	Riesenberg et al.,2020	+	+	+	-	-
	Pahwa et al.,2026	+	+	+	+	+
	Fernandez (a) et al.,2026	+	+	+	+	+
	Fernandez (b) et al.,2026	+	+	+	-	-

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
- Some concerns
+ Low

Figure 3: Weighted Bar plot for Risk of Bias Analysis



Discussion

The global burden of Parkinson's disease is considerable and continues to increase, with more than 11 million individuals currently affected worldwide [4]. This burden of disease alone demands active research and improvement of current therapies to decrease the morbidity associated with PD. The treatment modalities for PD are relatively limited, with traditional protocols including oral levodopa as well as dopamine agonists which act predominantly on D2/D3 receptors. Tavapadon is a novel, oral, once-daily, highly selective D1/D5 partial dopamine agonist with little activity at D2/D3 receptors. Two important findings are evident from this systematic review that 1) Tavapadon has got clinically proven benefits to patients in terms of their MDS-UPDRS change from baseline and 2) Tavapadon showed more adverse effects as when compared to the placebo. Tavapadon showed a higher incidence of Nausea, Headache, Dry mouth, Tremors, Constipation, Dyspepsia, Salivary hypersecretion, Fatigue, Dizziness and Hallucinations as compared to the placebo which was proven to have increased tremors in patients [1,3-5,7].

The (MDS-UPDRS) Unified Parkinson's Disease Rating Scale was used to compare the patient's response to Tavapadon therapy versus the placebo. (MDS-UPDRS) uses three domains to score patients namely Part I,II,III and Part II+III. The scale covers both of the motor and nonmotor symptoms of Parkinson's disease and its Part III measures objectively observed motor signs with 33 items. Part II+III is an overall or daily living assessment [8].

In studies performed by Papapetropoulos et al.,2018, Riesenberget al.,2020, Fernandez et al.,2026(b), Pahwa et al.,2026 and Fernandez et al. (a),2026 Tavapadon notably improved the score in Part III of the scale -10.6, -9.0, -9.0, 8.55 and 7.0 respectively. This is noteworthy as Tavapadon thereby improved the scores by a minimum of 5 points. This displaying

the positive and symptom altering ability of Tavapadon in the treatment of Parkinson's disease [3-5,7].

Part II+III of the (MDS-UPDRS) Unified Parkinson's Disease Rating Scale showed improvements in studies performed Fernandez et al., (a) 2026 and Fernandez et al. (b),2026 by -8.4 and 10.3 respectively [1,4]. This thereby categorically proving that Tavapadon improves overall daily living of its recipients showing significant and clinically meaningful improvements in Parkinson's disease motor symptoms.

The placebo simultaneously also minimally improved scores, which lends insight into the psychological aspect and component of therapy in the treatment of Parkinson's disease. This finding is supported by research conducted by Lidstone S. C et al., which stipulated that neuroimaging studies have demonstrated that placebos stimulate the release of dopamine in the striatum of patients with Parkinson's disease and can alter the activity of dopamine neurons using single-cell recording, thereby improving symptoms, such findings are evident in this systematic review [9].

The adverse effect profiles of drugs used in parkinsonism are an important factor through which both treating physicians and patients have to navigate. It is evident that Tavapadon does have side effects and statistically higher and more frequent adverse effects such as Nausea, Headache, Dry mouth, Tremors, Constipation, Dyspepsia, Salivary hypersecretion, Fatigue, Dizziness and Hallucinations as when compared to the placebos included in the studies conducted by Papapetropoulos et al.,2018, Riesenberget al.,2020, Fernandez et al.,2023, Pahwa et al.,2026 Fernandez et al. (a),2026 and Fernandez et al.(b),2026. [1,3,4,5,7] The positive effect of Tavapadon on motor symptoms was noted, with the placebo group showing more tremors. Traditional dopamine agonists namely pramipexole, ropinirole and rotigotine act on both D2/D3 receptors. The adverse effects of these traditional dopamine agonists include somnolence, impulse control disorders,

hallucinations, peripheral edema, hypotension and other neuropsychiatric complications similar to which was noted in the Tavapadon group. Tavapadon is unique as it acts by the selective stimulation of D1/D5 receptors and has an approximate 24-hour half-life, which may allow more sustained motor control while limiting excessive receptor activation and the adverse effects associated with the drug [2]. The limiting factor in this study is that traditional D2/D3 receptor agonists are not directly compared to Tavapadon in terms of clinical efficacy, (MDS-UPDRS) scores nor adverse effects profiles.

Now that the findings of this systematic review have proven that Tavapadon has got true benefits against the motor effects in Parkinson's disease, it is both important and warrants further investigation to ascertain whether Tavapadon is a true contender against traditional treatment modalities with respect to quantifiable motor and lifestyle score improvements as well as adverse effect profiles.

Conclusion

The novel drug Tavapadon has shown improved motor as well as Unified Parkinson's Disease Rating Scale scores as when compared to the placebo. Similarly Tavapadon has also shown to have a host of side effects which are expected in drugs acting on the dopaminergic receptors. The importance of these findings is that they both warrant as well as have set the groundwork for further exploration and investigation into Tavapadon versus traditional Dopaminergic drugs. Further investigation will be needed to take place in order to establish the clinical efficacy as well as the adverse effects profile of Tavapadon and traditional Dopaminergic drugs in head-to-head comparison studies.

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Authors' contribution

Conceptualization: IB, Protocol registration: KM, Searching databases and Article screening: KM, IB, JR, Quality assessment: KM, IB, Data analysis: KM, IB, Drafting Original draft: IB, JR, KM, NP, SB, IB (2), Editing and Critical Review: IB, JR, KM, NP, SB, IB (2), Supervision: IB (2)

All the authors approved the final version of the manuscript.

Competing interests

There is no conflict of interest between any of the authors.

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