

Continued Evaluation of Clinical Outcomes in Participants With Parkinson's Disease Through 4 Years After Bemdaneprocel Administration

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Introduction

PD is the fastest growing neurodegenerative disorder globally^{1,2}

- In 2021, there were approximately 11.9 million people living with PD, with 7.5 million and 388,000 PD-related DALYs and deaths, respectively^{1,2}

Bemdaneprocel is an investigational, pluripotent stem cell-derived dopaminergic neuron progenitor allogeneic cell replacement therapy surgically administered to the posterior putamen in people with PD with fluctuating motor symptoms inadequately controlled by standard medications³

exPDite was a first-in-human Phase 1 multicenter, open-label trial (NCT04802733) of bemdaneprocel that met its primary objective of safety and tolerability through 12 months post-transplantation³

- No TEAEs related to the cell product were reported
- Secondary and exploratory outcomes demonstrated clinical improvement or stability, including improvement in MDS-UPDRS Part III OFF scores through 18 months post-transplantation
 - The high-dose group showed a greater amplitude of changes in MDS-UPDRS motor scores and reduction in OFF Times, and an earlier onset of improvement

Following trial completion, all participants enrolled in a Continued Evaluation Study (NCT05897957) for assessment of safety and efficacy through 5 years post-transplantation⁴

Objective

To report safety and clinical outcomes of the Continued Evaluation Study participants with PD through 4 years after bemdaneprocel administration⁴

Methods

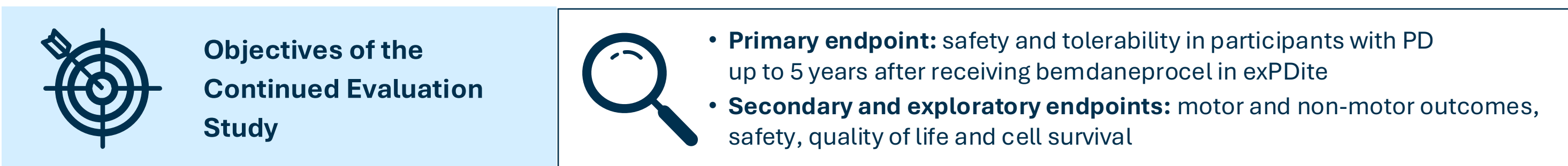
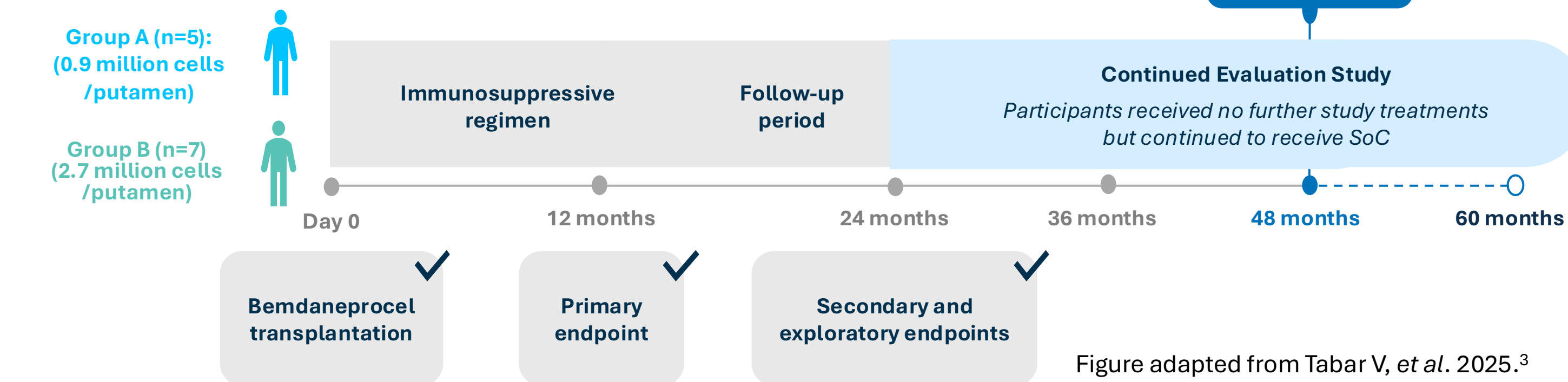
Participants

- In exPDite, 12 participants with PD enrolled and completed the exPDite trial across centers in the USA and Canada to receive either low- or high-dose bemdaneprocel, sequentially; all 12 participants subsequently enrolled in a Continued Evaluation Study (Figure 1)³

Figure 1. exPDite and Continued Evaluation Study Design

Key eligibility criteria

- Idiopathic PD^{*} for ≥ 5 to ≤ 15 years
- Levodopa response¹
- Hoehn and Yahr score of 0–3 in ON state (Canada) or 0–2 in ON state and 3–4 in OFF state (USA)



exPDite Surgical Procedure and Immunosuppression³

- Bemdaneprocel was administered stereotactically into the posterior putamen bilaterally through a single burr hole on each side in a single session (Figure 2)
 - A cannula was used to deliver a total of nine cell deposits along three tracks in each putamen
- Immunosuppression was initiated during transplantation and continued for 1 year post-transplantation
 - Basiliximab (20 mg, IV) was administered intraoperatively and on postoperative Day 4
 - Methylprednisolone (500 mg, IV) was initiated on Day 0, tapered to prednisone 5 mg (PO) and continued at 5 mg QD for 1 year
 - Tacrolimus (PO, BID) was initiated on postoperative Day 1 and adjusted to a target trough blood level of 4–7 ng/mL for 1 year

Figure 2. Surgical Procedure

Conclusions

- Bemdaneprocel continued to demonstrate a favorable safety profile through 4 years; there were no deaths, or discontinuations due to TEAEs
 - There were no TEAEs related to bemdaneprocel or of graft-induced dyskinesia and no evidence of mass lesions or tumors within the brain
- Motor outcomes demonstrated sustained favorable effects compared with baseline through 4 years
 - MDS-UPDRS Part III OFF scores were stable and continued to show trends of improvement from baseline; in some patient populations with PD, Part III OFF scores may increase by ~12–18 points over 4 years, depending on disease duration and treatment status⁵⁻⁷
 - ON Time without troublesome dyskinesia was stable and increased from baseline in the high-dose group
 - MDS-UPDRS Part II continued to show reduced score from baseline in the high-dose group

Results

Participant Demographics and Baseline Characteristics

- Demographics and baseline characteristics were balanced between the high- and low-dose groups (Table 1)
- All participants had a Hoehn and Yahr score of 2 in the ON state

Table 1. Participant Demographics and Baseline Characteristics

Parameter	Low Dose (n=5)	High Dose (n=7)
Age, years		
Mean (SD)	66.8 (6.8)	66.7 (4.8)
Sex, n (%)		
Male	4 (80.0)	5 (71.4)
Female	1 (20.0)	2 (28.6)
Race, n (%)		
Asian	0	1 (14.3)
White	3 (60.0)	5 (71.4)
Other	1 (20.0)	1 (14.3)
Multiple	1 (20.0)	0
Time since PD diagnosis, years		
Mean (SD)	11.0 (3.7)	7.8 (2.2)
Hoehn and Yahr score in the ON state, n (%)		
2	5 (100.0)	7 (100.0)
3	0	0
Hoehn and Yahr score in the OFF state, n (%)		
2	1 (20.0)	0
3	4 (80.0)	7 (100.0)

Safety and Tolerability

- Most TEAEs were mild or moderate through 4 years post-transplantation (Table 2)
 - TEAEs in the 'Nervous system disorders' and 'Infections and infestations' system organ classes were each reported in 9/12 (75.0%) participants
- No deaths, study discontinuations due to TEAEs, or graft-induced dyskinesias occurred
- To date, no TSEAEs were related to study drug delivery device, cell product or immunosuppression
- No mass lesions or tumors within the brain were observed by MRI

Table 2. Safety and Tolerability

Participants Reporting, n (%) [Number of Events]	Low Dose (n=5)	High Dose (n=7)
≥ 1 TEAEs[*]		
Mild	1 (20.0) [34]	2 (28.6) [48]
Moderate	2 (40.0) [23]	3 (42.9) [14]
Severe	2 (40.0) [9]	2 (28.6) [4]
TEAEs by assessed relationship[†]		
Related to cannula	1 (20.0) [1]	0
Related to surgery	0	3 (42.9) [3]
Related to immunosuppressive drugs	3 (60.0) [16]	5 (71.4) [12]
Related to disease	3 (60.0) [22]	6 (85.7) [10]
≥ 1 TSEAEs[‡]		
Related to surgery	0	1 (14.3) [1] [§]
Related to disease	2 (40.0) [3] [‡]	0
Deaths	0	0
Study discontinuations due to TEAEs	0 [¶]	0

^{*}Categorized by maximum CTCAE grade. [†]There were no TEAEs or TSEAEs related to syringe, transplanted cells, ¹⁸F-DOPA or MRI. There were a total of 10 SAEs through 4 years: 5 in the low dose group (1 SAE of COVID-19, 2 SAEs of hip fracture, 1 SAE of femur fracture, 1 SAE of syncope) and 5 in the high-dose group (1 SAE of seizure, 1 SAE of gastrointestinal hemorrhage, 1 SAE of atrial fibrillation, 1 SAE of left ventricular failure, 1 SAE of heart failure with preserved ejection fraction). [‡]2 SAEs of hip fracture; 1 SAE of femur fracture. [§]1 SAE of seizure. [¶]One participant in the low dose group withdrew from the study after the 4-year visit.

Clinical Outcomes

- Trends toward improvement in clinician- and patient-reported measures of motor function were observed, primarily in the high-dose group (Figure 3)
- Motor experiences of daily living were stable in the low-dose (mean [SD] 4.0 [6.2]) group and improved in the high-dose group (-2.3 [2.9]) from baseline

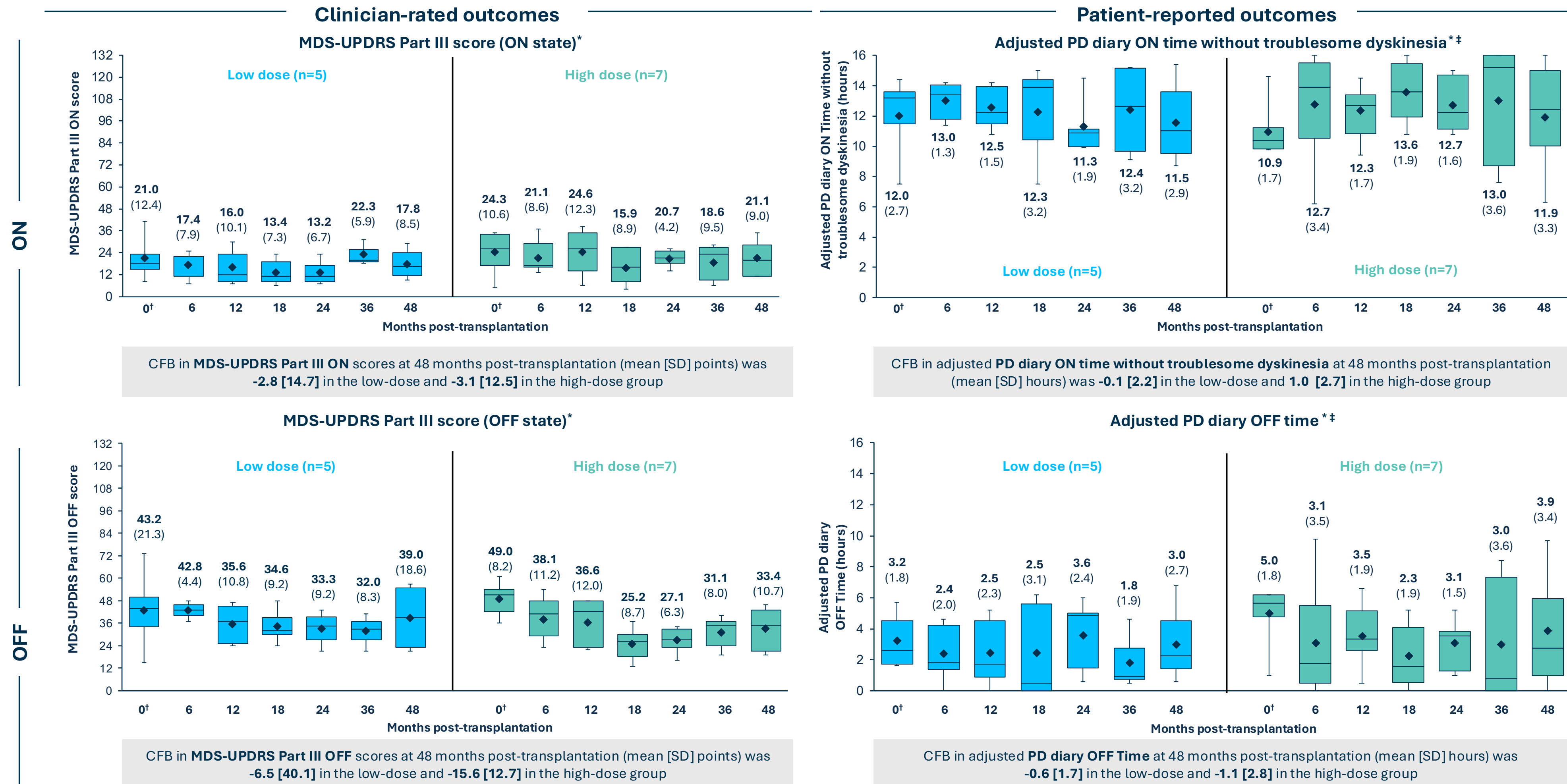
Antiparkinsonian Medication Use

- LEDD increased through 4 years (mean [SD]: 74.0 mg [370.3] and 331.0 mg [476.1] in the low- and high-dose groups, respectively)

Regional Dopaminergic Activity

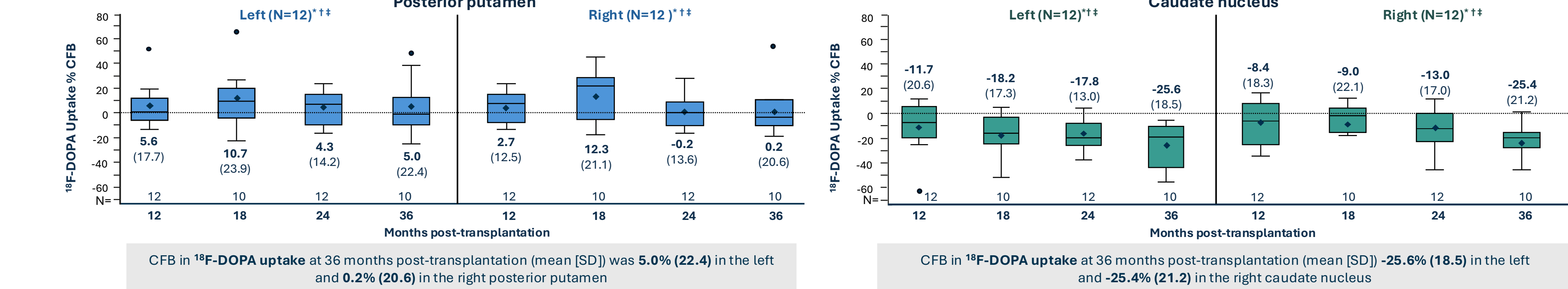
- ¹⁸F-DOPA uptake remained stable in the posterior putamen and declined in the caudate through 3 years post-transplantation (Figure 4)

Figure 3. Motor Outcomes: Clinician-Rated and Patient-Reported Outcomes^{*}



^{*}Horizontal lines, median; diamonds, mean; boxes, quartiles 1 and 3; whiskers, extreme values; annotations on graphs are mean (SD). In each analysis, a minority of time points were based on n=1 participants. [†]PD diary time (hours) is adjusted for a 16-hour waking day. [‡]The baseline value is defined as the last recorded value prior to the first dose of immunosuppressive drugs or cell transplant surgery.

Figure 4. ¹⁸F-DOPA PET Uptake



^{*}Horizontal lines, median; diamonds, mean; boxes, quartiles 1 and 3; whiskers, extreme values; dots, outliers; annotations on graphs are mean (SD). [†]Includes participants in both the high and low dose groups. [‡]The baseline value is defined as the last recorded value prior to the first dose of immunosuppressive drugs or cell transplant surgery. Four-year data will be presented at a future congress.

References:

- Li Y, et al. *BMC Public Health*. 2025;25(1):30472. 2. Su D, et al. *BMJ*. 2025;388:e080952. 3. Tabar V, et al. *Nature*. 2025;1(8064):978–983. 4. *clinicaltrials.gov*. NCT05897957. Updated March 2024. Available at: clinicaltrials.gov/study/NCT05897957 [Accessed: August 2026]. 5. Simuni T, et al. *Mov Disord*. 2025;37(2):600–615. 6. Holden SK, et al. *Mov Disord Clin Pract*. 2018;5(1):47–53. 8. *clinicaltrials.gov*. NCT06944522. Updated August 2026. Available at: clinicaltrials.gov/study/NCT06944522 [Accessed: August 2026]. **Abbreviations:** BID, twice daily; CFB, change from baseline; COVID-19, coronavirus disease 2019; CTCAE, Common Terminology Criteria for Adverse Events; DA, dopamine; associated life year; GI, gastrointestinal; IV, intravenous; LEDD, levodopa-equivalent daily dose; MDS-UPDRS, Movement Disorder Society-Unified Parkinson's Disease Rating Scale; MRI, magnetic resonance imaging; PD, Parkinson's disease; PET, positron emission tomography; PO, orally; QD, once daily; SAE, serious adverse event; SD, standard deviation; SoC, standard of care; SOR-1, striatal-to-occipital ratio; TEAE, treatment-emergent adverse event; TSEAE, treatment-emergent serious adverse event.

Disclosures:

C Henchcliffe: has received honoraria for consulting from AskBio and Certara; stock options for scientific advisory board participation from Avent Biosciences; honoraria for scientific advisory board participation from AbbVie, Bayer AG, Canary Health Technologies and ProtenX; honoraria for DSBM meetings from MeiraGTx; research support from BlueRock Therapeutics and Weston Brain Institute; and honoraria for presentations from the American Academy of Neurology, ASGCT, the Parkinson Study Group, Cleveland Clinic Foundation, Stanford and UCLA. **H Sarva:** has received clinical trial support from Bial, Biogen, BlueRock Therapeutics, Covance, Genentech, Insigtech, National Institutes of Health (NIH), NeuroDerm, Novo Nordisk, Bukwang, UCB, Ceravance, MeiraGTx and Prevail Therapeutics; and has received honoraria for consulting from NeuroDerm and Novo Nordisk. **A Fasano:** has stock ownership in InBrain Pharma and has received payments as consultant and/or speaker from Abbott, AbbVie, Boston Scientific, CereGene, Dompé Farmaceutici, InBrain Neuroelectronics, Ipsi, Ipsen, Medtronic, Mirz, Pelindaba, Sunovion, Synovis Health and UCB; has received research support from AbbVie, BlueRock Therapeutics, Boston Scientific, ES, Medtronic and Praxis; and receives royalties from Springer. **A Lozano:** has nothing to disclose. **S Kalia:** has received consultant and/or speaker honoraria from Abbott, Boston Scientific, Medtronic and Novo Nordisk. **KKH Yu:** has nothing to disclose. **C Brennan:** has nothing to disclose. **J Liu and J Patel:** are full-time employees of BlueRock Therapeutics. **V Tabar:** is a scientific advisor for BlueRock Therapeutics.

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