TABLE 1. *Clinical outcomes of patients with Parkinsonism syndrome with/without diabetes during 1-year postoperative period*

Clinical outcomes	No diabetes n=44(%)	With diabetes n=38(%)	p-value
1-year postoperative mortality	2(4.6)	10(26.3)	0.0098
Myocardial infarction	3(6.9)	9(23.7)	0.0570
Fatal myocardial infarction	1(2.3)	5(13.2)	0.0911
Ischemic stroke/fatal	1(2.3)/–	2(5.2)/ 2(5.2)	0.5941
Fatal pulmonary embolism	–	3(7.9)	0.0953
Gastrointestinal bleeding	1(2.3)	1(2.6)	1.0

LEAD outcomes are shown in Table 2.

TABLE 2. *Surgical complications in patients with Parkinsonism syndrome with/without diabetes after 1-year postoperative period*

Clinical outcomes	No diabetes n=44(%)	With diabetes n=38(%)	p-value
Balloon angioplasty of lower limb artery(s)	9(22.1)	14(23.5)	0.1394
Amputation of 1-2 toes	4(2.6)	11(15.7)	0.0442
Partial foot amputation	1(1.3)	7(9.8)	0.0219
Metatarsal amputation	2(2.6)	3(6.9)	0.6588
Trans-femoral amputation	1(1.3)	4(2.9)	0.1772

cardiovascular outcomes. We evaluated increase in 1-year postoperative mortality rate in patients with T2DM.

Conclusions: Patients with Parkinsonism syndrome and T2DM have 5fold increase risk in incidence of death and 3fold increase risk of myocardial infarction. LEAD progression was more severe in diabetic patients.

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Tau dysfunction in the basal ganglia of a mouse model of tauopathy related to PSP

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Objective: Determine motor coordination and neurochemical phenotypes in the basal ganglia of mice lacking the Tau protein or expressing an abnormal content of Tau isoforms.

Background: Microtubule-associated protein TAU is expressed in neurons and involved in microtubule polymerization and axonal transport. Tauopathies are neurodegenerative diseases, with presence of insoluble tau aggregates. Progressive Supranuclear Palsy (PSP) is a tauopathy that affects the basal ganglia thus leading PD symptoms. The pathological mechanisms of tauopathies have been extensively studied using animal models, mostly to analyze cognitive decline. Much less has been investigated about the role of normal and pathological Tau in the basal ganglia in those animal models. Here we investigated motor phenotypes and neurochemical changes in the striatum and substantia nigra pars compacta (SNpc) of mice lacking Tau (Tau KO) and in a mouse model of tauopathy (hTAU mice).

Methods: We compared Wild type (WT), TauKO and hTAU mice in spontaneous locomotor activity in the open field, motor coordination in the rotarod and cognitive performance in the novel object recognition task (NOR). Quantitation of dopaminergic (DA) neurons in the SNpc was done using stereology analysis. Dopamine and its metabolites were quantified by HPLC. The relative amount of Tau isoforms was quantified by qPCR and western blot. Hyperphosphorilated Tau was detected by immunohistochemistry.

Results: TauKO and hTau mice were both severely impaired in motor coordination tasks. Dopamine levels were dramatically decreased in the striata of TauKO mice but partially rescued in hTau mice. hTau mice expressed both 3R and 4R human Tau isoforms while wild-type mice only expressed 4RTau. However no hyperphosphorilated Tau accumulation was detected in the striatum nor in the SNpc of hTau mice. In addition the number of DA neurons in the SNpc was not altered in the hTau group.

Conclusions: Our results suggest that the lack of functional Tau or an abnormal Tau isoforms content affect motor and cognitive behaviours. Severe motor phenotypes observed in the hTau group might be related to an imbalance in Tau isoforms in the striatum. Thus, we propose the hTau mice as a suitable model to study molecular mechanisms underlying the pathological role of Tau in the basal ganglia.

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Leukocyte perturbations suggest immune dysregulation in progressive supranuclear palsy

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Objective: Compare the serum cytokine profiles and phenotypes of peripheral blood mononuclear cells (PBMCs) in a patient with Progressive Supranuclear Palsy (PSP) with his healthy twin brother.

Background: Monozygotic twins provide a valuable source of information and insight into disease mechanism, even more so in uncommon conditions like Progressive Supranuclear Palsy (PSP), an atypical type of Parkinsonism with a prevalence of 5 per 100,000. In this case report, we compared the serum cytokine levels and phenotypes of peripheral blood mononuclear cells (PBMCs) isolated from a 66-year-old Caucasian man suffering from PSP with those of his healthy identical twin. Research has shown microglia are diffusely and strikingly activated in the PSP brain compared to normal controls, and are highly correlated with tau burden and areas of degeneration. Brain autopsy studies of patients with PSP have described higher expression of IL-1β, TGFβ, IL-6, and TNFα in the substantia nigra (SN) and the subthalamic nucleus (ST). Blood isolated from patients with PSP has been shown to be enriched in classical monocytes (CD16-CD32+).

Methods: Blood samples from peripheral venipuncture were obtained to measure cytokine levels and isolate PBMC. A 37-plex human cytokine/chemokine panel was utilized to detect cytokine concentrations. Flow cytometry analysis for leukocyte surface markers was performed on freshly isolated PBMC.

Results: Serum from the patient with PSP showed increases in IFNα2, TNFβ, IL-6 and IFNγ, VEGF, MCP-1, MCP-3 and BDNF when compared to his healthy twin. PBMC isolated from the patient with PSP contained a higher percentage of CD14+/CD16-/CD32+ monocytes and a very low percentage of lymphocytes. There was a decrease in the expression of the fractalkine receptor (CX3CR1) and class II MHC HLA-DR molecules on the monocyte population of the patient with PSP.

Conclusions: There is evidence of a pro-inflammatory environment (IFNα2, TNFβ, IL-6 and IFNγ) in the patient with PSP along with increased MCP-3 and MCP-1 levels that result in a concomitant increase of the monocyte population. The decrease in CX3CR1 expression suggests that monocytes may be unable to respond to fractalkine secreted by damaged neurons. It remains to be determined if this represents a cause of the PSP pathology, or if it is a long-term side effect of chronic neuroinflammation.