**Supplementary Tables legends**

**Table S1. Main genetic, clinical, neuroimaging and neuropathological features of vascular parkinsonism and familial Parkinson’s disease.** cSVD, cerebral small vessel disease; AR, autosomal recessive; AD, autosomal dominant.

**Table S2**. Main mendelian cerebral small vessel diseases leading to vascular parkinsonism. AD, autosomal dominant; AR, autosomal recessive.

**Table S3. Modified Scheltens scale used to analyse cerebral small vessel neuroradiological biomarkers in our cohort.** PVH, peri-ventricular hyperintensities; WMH, white matter hyperintensities; SC, status cribrosus; CMI, cortical microinfarcts; LI, lacunar infarcts.

**Table S4.** Cohort description: familial PD, familial PD prodromal patients and controls. WMHCS, white matter hyperintensity cumulative score; LSWMHCS, lobar superficial white matter hyperintensity cumulative score.

**Table S5. cSVID and CTRLS Exome Sequencing cohort. c**SVID,cerebral small vessel ischemic disease; AAO, age at onset; SD, standard deviation; M, male; F, female. MI, myocardial infarction; AF, atrial fibrillation; y, years; GB, Great Britain; NA, not available

**Table S6.** White matter hyperintensity single and cumulative scores in familial PD, familial PD prodromal patients and controls

**Table S7**. Rare coding variants in PD Mendelian genes and main GWAS Loci detected in our discovery cohort. Ref, reference base; Alt, alternative base; Aa, amino-acid; SVID, small vessel ischemic disease; AD, autosomal dominant, AR, autosomal recessive; AAO, age-at onset; PD, Parkinson’s disease; y, years. Ihn., inheritance; ACMG, American College of Medical genetics and genomics.

**Table S8.** Genetic screening of the main PD mendelian genetic causative and risk factors in 243 elderly controls from the HEX database.