DAT Imaging in a cohort of p.A53T SNCA PD patients versus typical PD

RATIONALE-DESIGN

Few systematic imaging studies performed in carriers of the p.A53T SNCA mutation

Only one such study for DAT Scans (Bostantjopoulou et al., 2008)

In our study, comparison of 11 PPMI-entered p.A53T PD to 33 PPMI-entered PD subjects

Age-, sex-, and disease duration-matched

Correlation of DAT with neuropsychological tests

More comprehensive analysis of differences between A53T and typical PD in non-motor function in Koros et al., Neurology, 90(10):e864-e869

RESULTS

FEATURE	p.A53T PD (N=11)	PD (N=33)	p Value
Demographics and motor			
	mean±SD	mean±SD	
Age (years)	50.18 (±9.09)	50.79 (±9.25)	0.85>0.05[a,c]
Disease duration (years)	3.55 (±2.33)	2.79 (±1.42)	0.296>0.05[a,d]
Education (years)	11.82 (±4.26)	13.48 (±2.37)	0.221>0.05[a,d]
MDS-UPDRS III in ''On''	23.36 (±15.06)	20.61 (±9.2)	0.577>0.05[a,c]
L-Dopa Equivalent daily dose (LEDD)	652.64 (±532.83)	234.21 (±342.16)	0.005<0.05[a,d]
	frequencies	Frequencies	
Gender (male / female)	6(54.5%) / 5(45.5%)	18(54.5%) / 15(45.5%)	1>0.05[a,e]
DaTSCAN Binding Ratios			
	mean±SD	mean±SD	
Ipsilateral Caudate	1.3 (±0.99)	2.06 (±0.67)	0.006<0.0125[b,c]
Ipsilateral Putamen	0.57 (±0.37)	0.85 (±0.39)	0.034>0.0125[b,d]
Contralateral Caudate	0.97 (±0.65)	1.67 (±0.6)	0.002<0.0125[b,c]
Contralateral Putamen	0.53 (±0.29)	0.6 (±0.19)	0.526>0.0125[b,c]
Ipsilateral/Contralateral Caudate ratio	1.33 (±0.41) (N=9, Missing values=2)[f]	1.27 (±0.29)	0.771>0.0125[b,d]
Ipsilateral/Contralateral Putamen ratio	1.35 (±0.9) (N=9, Missing values=2)[f]	1.4 (±0.34)	0.101>0.0125[b,d]
Ipsilateral Caudate/Putamen ratio	2.33 (±0.54) (N=9, Missing values=2)[f]	2.63 (±0.75)	0.319>0.0125[b,d]
Contralateral Caudate/Putamen ratio	2.24 (±0.94) (N=9, Missing values=2)[f]	2.91 (±0.95)	0.007<0.0125[b,d]

CONCLUSIONS

DAT Scan in p.A53T PD vs typical PD

- **Lower caudate binding ratios**
- **No difference in asymmetry**
- **No correlation of caudate binding ratios with neuropsychological testing**
- **Higher LEDD**
- **Results indicative of a different topographical pattern of nigrostriatal degeneration or more severe disease in p.A53T PD**