correlated with the staff rated Dundrum-4 (0.373, p = 0.003). The self-rated Dundrum-3 correlated with the HCR-20 total (0.0352, p = 0.005), HCR-C (0.3677, p = 0.004), and HCR-R (0.301, p = 0.018). The self-rated Dundrum-3 correlated significantly with GAF occupational (-0.273, p = 0.48), symptomatic (-0.299, p = 0.03). The self-rated Dundrum-4 correlated only with the GAF symptomatic (-0.333, p = 0.05). The self-rated Dundrum-3 correlated with PANSS positive (0.457, p = 0.001), PANSS negative (0.514, p < 0.001), PANSS general (0.395, p = 0.004) and PANSS total (0.352, p = 0.005). The self-rated Dundrum-4 correlated with PANSS positive (0.356, p = 0.01) and PANSS negative (0.413, p = 0.002).

Conclusion. There was good correlation between patient and clinician ratings of programme completion and recovery. Patient self-ratings of programme completion and recovery correlated with staff ratings of functioning and symptoms. The directions of agreement were correct

Structural and Functional Thalamic Changes in Progressive Supranuclear Palsy

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Aims. Studies of thalamic structure and function in Progressive Supranuclear Palsy (PSP) suggest it may play a role in key aspects of the clinical syndrome. This study examined thalamic changes across PSP phenotypes investigating (i) thalamic atrophy (ii) thalamic functional connectivity and (iii) the relationship between thalamic structural and functional connectivity changes with clinical severity.

Methods.

Participants

92 participants with PSP [63 PSP-Richardson's Syndrome (RS), 24 PSP-cortical, 5 PSP-subcortical] and 104 age-matched controls were recruited from the Cambridge Centre for Parkinson's Plus Disorders cohort. Clinical assessments and imaging were conducted within 1 year of diagnosis.

Structural Analysis

Thalamic volumes (TVs) were obtained using FreeSurfer. Bayesian multiple regression (brms, R) was used to model (i) mean TVs (ii) group differences in mean TVs (iii) relationships between Z-standardised clinical scores and TVs with age, gender, and total grey matter as covariates.

Functional Analysis

Voxel-wise seed-based functional connectivity of the thalamus used the Functional Magnetic Resonance Imaging Expert Analysis Tool (FEAT) in FMRIB's Software Library (FSL). Inter-group differences and relationships between clinical scores and functional connectivity for each group were assessed using a general linear model with age and gender as covariates.

Results.

Structural Analysis

TVs for all PSP subgroups were smaller than controls. No differences between PSP subgroups were detected. There was evidence for a relationship between TVs for the entire PSP group and Revised Addenbrooke's Cognitive Examination (ACER) scores [ß = 0.28, 95% credible interval (CI) = 0.04–0.53]. Subgroup analysis showed evidence for a relationship between ACER scores and TVs in PSP-RS [ß = 0.33, 95% CI = 0.09–0.57] and PSP-cortical [ß = 0.46, 95% CI = 0.12–0.83] phenotypes. A negative influence of TVs on total PSP rating scale scores was found for the PSP cohort a whole [ß = −0.51, 95% CI = −1.00 – −0.02].

Functional Analysis

PSP patients as a group showed decreased thalamic functional connectivity in higher cortical regions. Subgroup analysis revealed decreased connectivity in those areas compared to controls but in distinct distributions and magnitude. Increased thalamic connectivity with the middle temporal gyrus correlated with ACER scores for PSP patients as a group and in the PSP-cortical subtype.

Conclusion. Thalamic volume loss is a prominent aspect of PSP and is associated with a wide network of changes in functional connectivity that may be distinct between PSP subtypes. Changes in thalamic structure and function predict clinical severity, particularly in PSP-RS and PSP-cortical subtypes.

Assessing the Impact of Pre-Existing Mental Health and Neurocognitive Disorders on the Mortality and Severity of COVID-19 in Those Aged Over 18 Years: A Systematic Review and Meta-Analysis

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Aims. Since the coronavirus disease 2019 (COVID-19) pandemic began, evidence suggests that people with underlying mental health disorders have worse outcomes from COVID-19 infection. Our aim was to assess the impact of COVID-19 infection on people with pre-existing mental health or neurocognitive disorder including COVID-19 related mortality and severity.

Methods. We conducted systematic searches of PubMed, EMBASE, and Cochrane library for articles published between 1 December 2019 and 15 March 2021. The language was restricted to English. We included all case control, cohort and cross sectional studies that reported raw data on COVID-19 associated mortality and severity in participants aged 18 years or older with a pre-existing mental health or neurocognitive disorder compared to those without. Three independent reviewers extracted data according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and the Meta-analysis of Observational Studies in Epidemiology (MOOSE) guidelines. Methodological quality and risk of bias were assessed using the 9-star Newcastle-Ottawa Scale. We calculated the odds ratio as the summary measure along with the corresponding 95% confidence intervals. The random effects model was used to calculate the overall pooled risk estimates. COVID-19 related mortality was the primary outcome measure. The secondary outcome measure was COVID-19 related severity, defined as intensive care unit admission or use of mechanical ventilation.

Results. Fifteen studies were included in the meta-analysis comprising of 8,021,164 participants. There was a statistically significant increased risk of mortality for participants with a pre-existing mental health or neurocognitive disorder compared to those