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Thursday

Prenatal neurodevelopmental brain reserve influences disease expression in behavioral variant Frontotemporal Dementia (bvFTD)

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State of the art. Right anterior cingulate gyrification, characterised by the presence of a paracingulate sulcus (PCS) is a potential disease modifying factor in sporadic bvFTD such that its presence delays age at symptom onset (AAO). The present study aims to replicate this analysis and explore the effect of right PCS on survival and disease progression in bvFTD.

Methodology. In this cross-sectional study T1-magnetic resonance images of individuals with sporadic bvFTD (n=186, mean age 63.28, SD 8.32) were rated by two blinded raters. Hemispheric PCS presence was identified in subjects according to established criteria.

Results. Right PCS presence was associated with later AAO; mean AAO was 60.2 (8.54) in individuals with a right PCS versus 57.76 (8.05) in individuals without, (95% CI >0.41, p= 0.024). Left PCS presence did not significantly affect AAO (p=0.16). An interaction effect between sex and right PCS presence on AAO was identified with AAO greater in males processing a right PCS, (Beta = 5.14 p = 0.03). Education did not impact upon AAO, (p=0.75).
Mean age at death was similar in individuals with a present (66.94 years (9.66)) and absent (67.62 (7.38)) right PCS, (p = 0.7). Survival was significantly affected by right PCS presence with the incidence of death per year 65.1% greater in individuals processing a right PCS (HR 1.65, CI 1.13 - 2.42, P=0.01) compared to those without.

Conclusion. Right paracingulate sulcation is associated with disease expression and progression in sporadic bvFTD providing possible evidence of a neurodevelopmental brain reserve in bvFTD.

Conflicts of interest

N/A