

Revisiting dementia praecox - Machine learning reveals links between psychosis and frontotemporal dementia

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State of the art

Behavioral and cognitive symptoms of severe psychotic disorders overlap with those seen in dementia, especially in schizophrenia and behavioral variant frontotemporal dementia (bvFTD). Shared neural correlates remain disputed and its relevance for patients in at-risk disease stages has not been explored so far.

Methodology

We applied machine learning to compare structural magnetic resonance imaging (MRI) patterns of bvFTD, Alzheimer's disease (AD) and schizophrenia, and examined their prognostic value and genetic underpinnings based on data from 1,870 individuals involved in multi-site and single-site cohorts.

Results

The bvFTD pattern comprising prefrontal, insular and limbic atrophy was more expressed in schizophrenia than temporo-limbic AD patterns. bvFTD expression was predicted by accelerated brain aging, later disease onset and symptoms of personal neglect. The schizophrenia pattern was expressed by the majority of bvFTD patients and was linked to brain aging, C9orf72 mutation, and impulsivity. bvFTD and schizophrenia pattern expressions forecasted two-year psychosocial impairments in clinical high-risk states for psychosis. One-year bvFTD/schizophrenia pattern progression distinguished patients with non-recovery from those with preserved recovery.

Conclusion

Results suggest neurobiological links between bvFTD and psychosis focusing on prefrontal and salience-system pathology. Further transdiagnostic investigations are needed to identify shared pathophysiological processes underlying the neuroanatomical interface between the two disease spectra.

Conflicts of interest

Nothing to disclose.