Resting-state fMRI neurodynamics in neuropsychiatric disorders

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Propositions

1. Resting-state fMRI analysis can help to define brain biomarkers of neuropsychiatric disorders.

2. Dynamic analysis of brain network activation presents added value for defining these biomarkers.

3. Coherent, causal, and emulative neurodynamics combined are strong features for describing neuropsychiatric disorders.

4. Resting-state fMRI dynamics should be used in the development of new products or services aiming at facilitating the diagnosis and prognosis of major neuropsychiatric disorders.

5. Multi-modal approaches might be the key for improving machine learning performances and accurate predictions of treatment responses.

6. Structural and functional brain data are increasingly relevant for personalised medicine.

7. Large brain dataset repositories are highly important for classification and the development of new diagnostic tools.

8. Research in new analytic methods and brain imaging hardware must be further conducted to help neuropsychoradiology.

9. New machine learning methods and neuromorphic hardware are being developed and can greatly help medicine.

10. Read-and-write brain chip implants at neuronal level are breakthrough devices that will revolutionise neuroscience and the treatment of neurological conditions.