EPV1056

Sex-Based Classification of Grey Matter Volume Using SVM: Implications for Early-Phase Psychotic and Mood Disorders

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Introduction: Understanding sex differences in brain structure is crucial for advancing personalized medicine. However, the alterations of sex-based neuroanatomical differences during the early phases of mood and psychotic disorders remain largely underexplored.
Objectives: This study aimed to evaluate neuroanatomical sex-based differences in a healthy cohort and assess potential alterations in clinical populations from the early psychiatric spectrum using a machine learning approach.
Methods: For this, we developed a Support Vector Machine (SVM) model trained to classify sex based on grey matter volume from a cohort of healthy controls (HC, n = 521), aged 15 to 40 years. After optimization and cross-validation, the model was applied to three distinct clinical populations from the same age range: individuals at clinical high risk for psychosis (CHR, n =334), those with recent onset psychosis (ROP, n = 351), and those with recent onset depression (ROD, n = 309).
Results: The model achieved a robust balanced accuracy (BAC) of 85.1% ($p < .01$) in the HC cohort. When applied to the CHR group, the model maintained a BAC of 85.5%, whereas its performance decreased in the ROP (75.8% BAC) and ROD (79.3% BAC) groups. In contrast to previous literature, female participants in the ROP group exhibited a masculinization of brain patterns, while male participants showed no such reversal. In the ROD group, both sexes revealed a slight tendency toward patterns typical of the opposite sex.
Conclusions: These preliminary findings suggest that sex-based neuroanatomical structures remain preserved at high-risk stages but undergo alterations with disorder progression. Future research will investigate the observed performance decline in relation to other phenotypic factors. These findings offer novel insights into sex-specific neurobiological mechanisms underlying psychotic and mood disorders and their early markers.

Disclosure of Interest: None Declared

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Uncovering Fahr's Disease Through Psychotic Symptoms: A case report

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Introduction: Bilateral pallidodentate calcinosis (BPC), also known as Fahr's disease, is an uncommon neurodegenerative disorder that may be either genetic or sporadic. It is distinguished by bilateral and symmetrical deposits of calcium in the basal ganglia and occasionally in the cerebral cortex, impacting the regulation of motor and cognitive functions.
Objectives: To underline the diagnostic pitfalls faced in Fahr's disease when psychotic manifestations are predominant, thereby emphasizing the need to integrate neuroimaging and diagnostic assessments in differenciating this disease from a primary psychotic disorder.
Methods: We present a rare case of Fahr's disease with an atypical initial presentation, where the condition was initially misdiagnosed due to predominant psychiatric symptoms.
Results: The patient, a 34-year-old man, displayed significant behavioral disturbances and cognitive decline since the age of 30. Initial psychiatric assessments identified a delusional syndrome, hallucinatory episodes, and psychomotor agitation, leading to a provisional diagnosis of a primary psychotic disorder. However, neuroimaging subsequently revealed bipallidal calcifications characteristic of Fahr's disease, and further diagnostic evaluations (neurological examinations, a determination of parathyroid hormone (PTH) levels along with a comprehensive calcium-phosphate evaluation) confirmed the condition.The patient was treated symptomatically with second-generation antipsychotics, alongside supportive therapy, resulting in partial symptom alleviation.
Conclusions: This case underscores the challenges of diagnosing Fahr's disease when psychiatric manifestations predominate, which can delay appropriate diagnosis and treatment. Continuous, multidisciplinary follow-up is essential for optimal management of psychiatric symptoms.

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Neuroscience in Psychiatry

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Neuropsychiatric Manifestations in Systemic Lupus Erythematosus: Psicosis as a Clinical Challenge in a Case Report and Updated Literature Review

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Introduction: Systemic lupus erythematosus (SLE) is a multisystem autoimmune disease that affects the central nervous system (NP-SLE) in approximately 30-40% of patients, with psychosis being one of the less common yet very serious manifestations, occurring in about 2-3.5% of cases. Diagnosing psychosis in SLE can be challenging, requiring careful integration of medical history with appropriate complementary tests (immunological, CSF, neuroimaging…) while considering other possible differential diagnoses.