

NMDAR-antibody encephalitis psychopathology: systematic review and phenotypic analysis

Adam Al-Diwani^{1,2}; Adam Handel¹; Leigh Townsend¹; Thomas Pollak³; Maria I Leite¹; Paul J Harrison²; Belinda Lennox²; David Okai¹; Sanjay Manohar¹; Sarosh R Irani¹.

¹Oxford Autoimmune Neurology Group, University of Oxford; ²Department of Psychiatry, University of Oxford; ³Department of Psychosis Studies, Institute of Psychiatry, Psychology and Neuroscience.

Background

Early immunotherapy improves outcomes in patients with NMDAR-antibody encephalitis (NMDAR-Ab-E). Most present initially to psychiatrists meaning clear description of psychopathology is needed to permit accurate clinical identification, avoiding under and over-diagnosis.

Method

A PubMed search identified a cohort of individually-reported adult patients satisfying consensus criteria for definite NMDAR-Ab-E, between 01/01/2005 and 07/10/2017. An emergent list of fine-grained, lower-level features was used to collate psychopathological data. Subsequently, comparisons with operationalised psychiatric syndromes and network analysis were performed with and without enrichment for reports reflecting psychiatric expertise.

Findings

464 individually-reported cases were included: median age was 27 years, 368/464 (79%) were female and 147/464 (32%) associated with ovarian teratoma. From 50 lower-level features, the most frequent crossed multiple traditional psychopathologic domains including psychosis, behaviour, mood, catatonia, and sleep. This pattern remained remarkably stable across demographic and aetiological subgroups (2-way ANOVA $P > 0.6$). Network analysis confirmed that the features were closely-related and consistent between individual patients. Furthermore, two approaches to modelling these features found that mixed mood-psychosis syndromes provided the best fit to NMDAR-Ab-E, particularly based on the more psychiatrically-informed descriptions (mean $\Delta AIC = -0.04$ versus 0.61).

Interpretation

The distinctive aspect of NMDAR-Ab-E psychopathology is complexity: core aspects of mood and psychotic disorders consistently co-exist within individual patients. Alongside the predominant young female demographic, this pattern could help clinicians more selectively identify patients who would benefit from cerebrospinal fluid antibody testing and immunotherapies.