INPLASY

Clinical Characteristics of Antibody-Negative versus Antibody-Positive Autoimmune Encephalitis: A Systematic Literature Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 April 2024 and was last updated on 23 April 2024.

INTRODUCTION

Review question / Objective This study aims to systematically evaluate the similarities and differences between antibody-negative and antibody-positive autoimmune encephalitis (AE) patients in terms of demographic characteristics, clinical manifestations, and auxiliary examination results. We will use meta-analysis to quantitatively compare the main clinical indicators of the two groups, to better understand the heterogeneity of AE and provide references for clinical diagnosis and treatment.

Condition being studied Autoimmune encephalitis (AE) is a group of autoimmune diseases characterized by subacute memory deficits, psychiatric and behavioral abnormalities, epileptic seizures, and impaired consciousness. In recent years, the discovery of neuronal surface or synaptic antibodies has greatly promoted the diagnosis and treatment of AE. However, a considerable proportion of patients still have negative serum and cerebrospinal fluid antibody tests.

The diagnosis of antibody-negative AE patients is more challenging, often leading to misdiagnosis and delayed treatment. Therefore, an in-depth exploration of the similarities and differences between antibody-negative and antibody-positive AE patients is of great significance for guiding clinical diagnosis and treatment. Previous individual studies have compared the clinical characteristics of the two groups, but the sample sizes were small, and the conclusions were limited. To date, there is no systematic evidence summary.

This study intends to conduct a systematic literature search, screening, data extraction, and quality assessment to qualitatively and

quantitatively compare the clinical characteristics of antibody-negative and antibody-positive AE patients. We aim to provide an objective and comprehensive evidence summary for this field, helping clinicians better understand and diagnose AE, especially antibody-negative AE. Furthermore, exploring the heterogeneity between the two groups may provide clues for subsequent research on the pathogenesis of antibody-negative AE and the development of new diagnostic markers.

METHODS

Participant or population Patients with antibody-negative and antibody-positive autoimmune encephalitis.

Intervention No applicable.

Comparator No applicable.

Study designs to be included Case-control study.

Eligibility criteria Inclusion criteria also language: literature was limited to English or Chinese. Exclusion criteria: Exclude non-original studies such as case reports, reviews, commentaries, conference abstracts, etc.; duplicate published studies; animal or in vitro experiments.

Information sources This study adheres to the PRISMA statement and the Cochrane Handbook for Systematic Reviews. We systematically searched both English and Chinese databases, including PubMed, Embase, Web of Science, China National Knowledge Infrastructure (CNKI), Wanfang, VIP, and the Chinese Biomedical Literature Database (SinoMed). We employed a strategy combining free words and subject headings, with search terms including "autoimmune encephalitis"[MeSH] OR "autoimmune encephalitis"[tiab] OR "limbic encephalitis"[MeSH] OR "limbic encephalitis"[tiab]) AND ("seronegative"[tiab] OR "antibody negative"[tiab], covering all records up to April 2024. Additionally, we reviewed the references and related articles of the retrieved papers. After removing duplicates, two researchers independently screened the titles and abstracts, and any discrepancies were resolved through team discussion.

Main outcome(s) Currently, we have observed differences between the two patient groups across several indicators, differences that were not reflected in previous individualstudies.

Quality assessment / Risk of bias analysis The quality of the studies was assessed using the Newcastle-Ottawa Scale (NOS), which rates case-control studies based on three dimensions: selection (4 points), comparability (2 points), and exposure (3 points), with a total of 9 points possible. Studies scoring ≥5 points are considered high quality. Two researchers independently scored each study, and any discrepancies were resolved throughdiscussion.

Strategy of data synthesis For binary variables, the effect size is combined using the odds ratio (OR) and its 95% confidence interval (CI), while for continuous variables, the standardized mean difference (SMD) and its 95% CI are used. Heterogeneity among groups is assessed through Cochran's Q test and the I^2 statistic. A fixed-effect model is used when the Q test p-value is >0.1 and I^2 is 0.05. Sensitivity analysis is conducted to evaluate the impact of individual studies on the overall effect size. All analyses are performed using R software version 4.2.2 with the 'metafor' package. All statistical analyses are conducted on the SPSSAU platform developed in R language (https://spssau.com/), ensuring the accuracy and reproducibility of the analyses.

Subgroup analysis No applicable.

Sensitivity analysis Sensitivity analysis is conducted to evaluate the impact of individual studies on the overall effect size.

Language restriction Yes, English or Chinese.

Country(ies) involved China.

Keywords Seronegative Encephalitis, Antibody-Negative Autoimmune Encephalitis, Prognosis, MRI, CSF, Pathophysiology.

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