

Imaging alterations in autoimmune encephalitis: a systematic review and meta-analysis

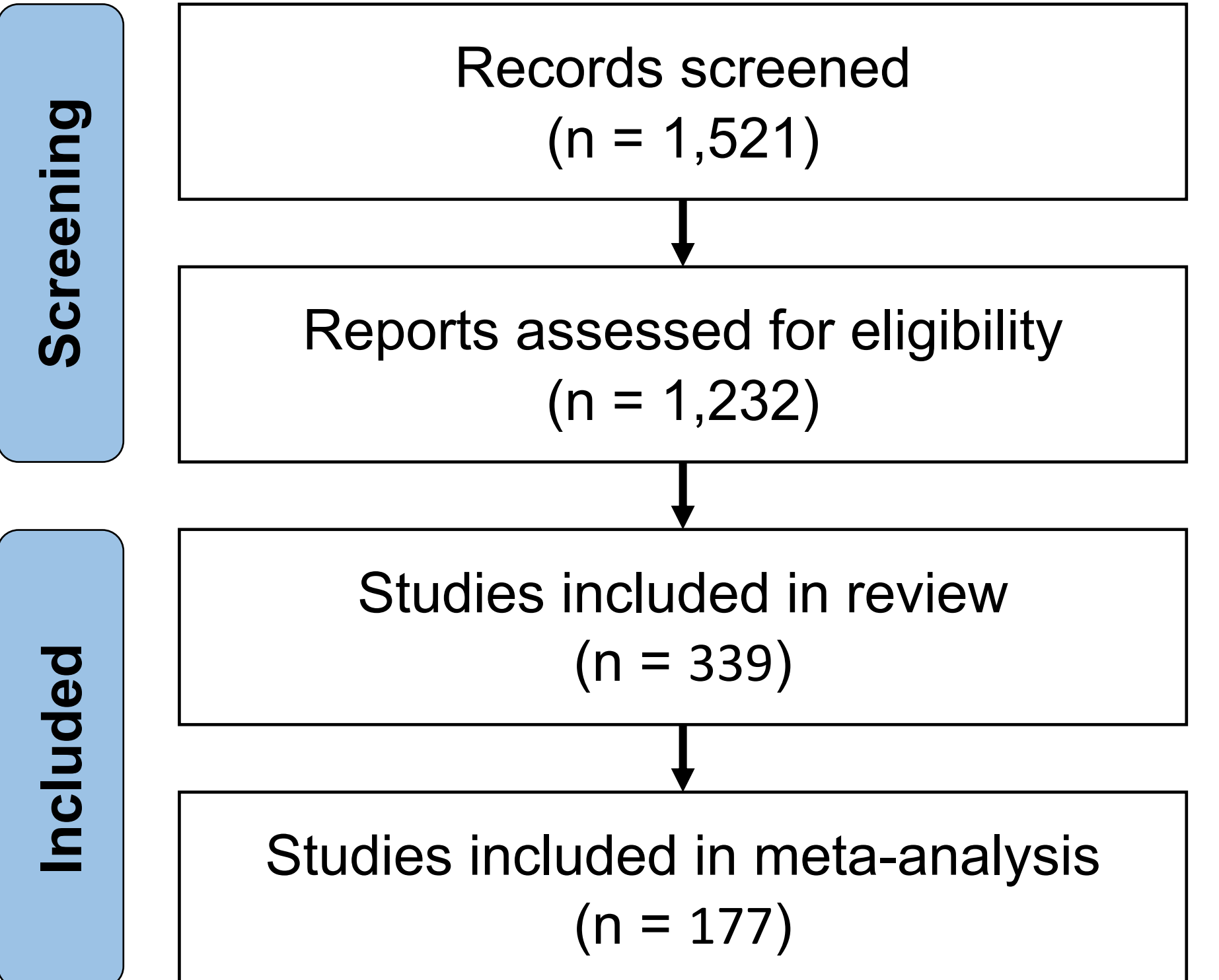
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Background

- **Diagnostic Significance:** Understanding typical imaging patterns aids clinicians in recognizing autoimmune encephalitis (AIE), enhancing diagnostic confidence and clinical decision-making.
- **Growing Data Availability:** Increasing reports on various antibody targets provide ample data for statistical analysis, allowing for meta-analytic summaries of imaging abnormalities.
- **Systematic Review and Meta-Analysis** of acute brain imaging in AIE, assessing pooled prevalence of imaging abnormalities, and visualizing affected brain regions, highlighting disease-specific patterns.

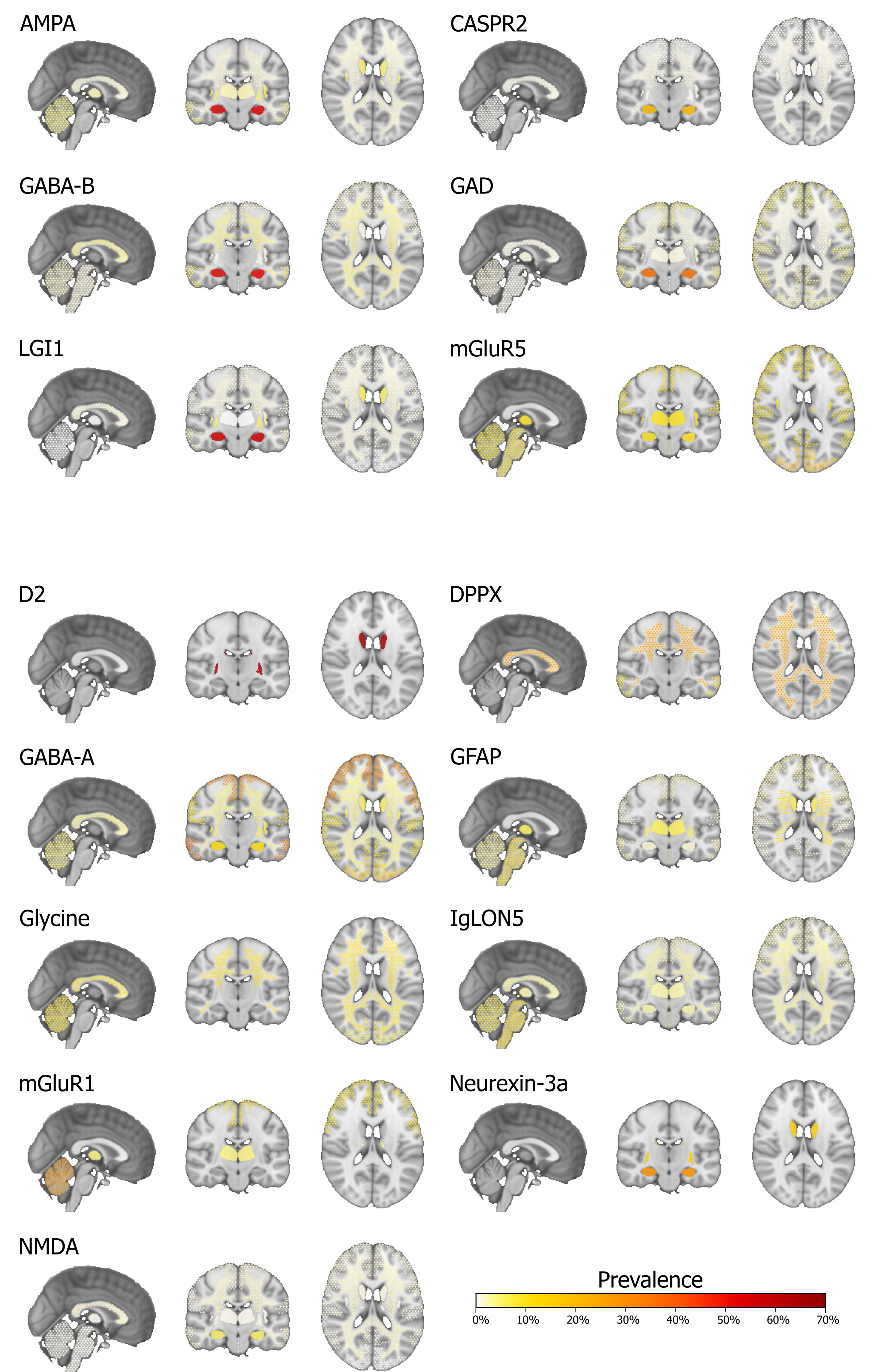
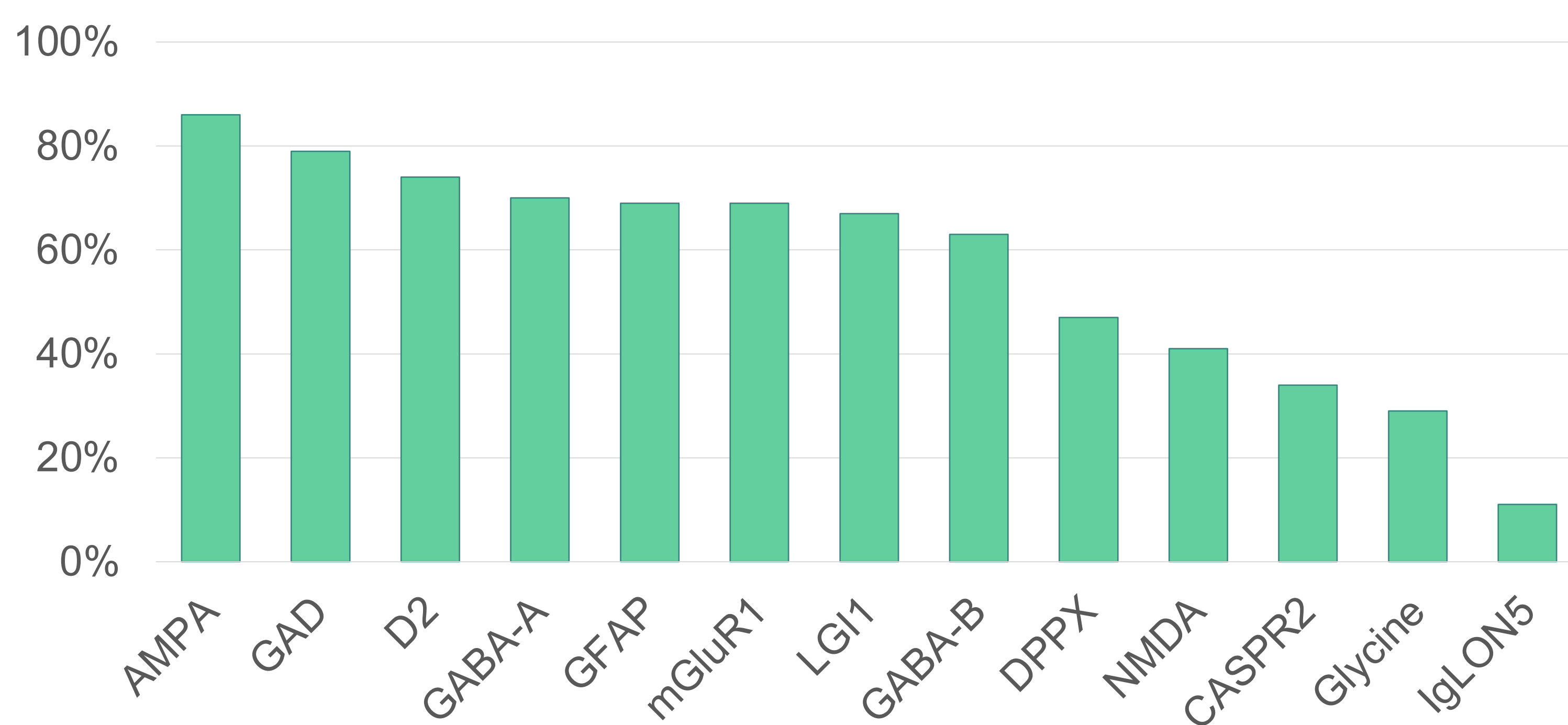
Methods

- **Comprehensive Literature Search :** peer-reviewed articles published 2007-2021 in English.
- **Analysis Methods:** Meta-analysis was conducted using a random effects model.
- **Bias Assessment:** Methodological quality was evaluated using the JBI critical appraisal checklist for case reports. Reporting bias was assessed using funnel plots, Doi plots, and the Luis Furuya-Kanamori (LFK) index.



Distinct imaging patterns across autoimmune encephalitides

Prevalence of acute MRI alterations



Conclusions

- **Prevalence Variation:** Prevalence of acute imaging alterations in AIE ranged from 11% to 86%.
- **Limbic encephalitis:** T2/FLAIR hyperintensities in the MTL were typical in encephalitis with antibodies against AMPA-R, CASPR2, GABA-B-R, GAD, LGI1 and mGluR5, rare in GFAP, GABA-A-R, IgLON5, Neurexin-3a and NMDA-R encephalitis, and absent in other AIE types.
- **Distinct Antibody Patterns:** Specific antibodies were linked to characteristic MRI patterns (e.g., unilateral basal ganglia hyperintensity for LGI1 or cortico-subcortical lesions in GABA-B-R encephalitis).
- **Red Flags:** Unilateral lesions or asymmetric MTL involvement, patchy contrast enhancement or ischemia are atypical for AIE, indicating possible alternative diagnoses.
- **Clinical Significance:** Understanding distinct AIE imaging patterns is relevant for accurate diagnosis and guidance of treatment decisions.



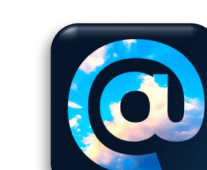
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