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Efficacy and Safety of the Innovative Monoclonal Antibodies in Adults with Generalized Myasthenia Gravis: a Bayesian Network Analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202370112

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 July 2023 and was last updated on 29 July 2023.

INTRODUCTION

Review question / Objective We conduct a frequentist network meta-analysis (NMA) for comparison between drugs for MG based on the RCT trials.

Condition being studied While several clinical trials support the efficacy of monoclonal antibodies for myasthenia gravis (MG) against the placebo, the evidence of efficacy and safety between drugs is limited.

METHODS

Participant or population Patients diagnosed as generalized MG classified by classified as MGFA II to V in accordance with standard diagnostic criteria.

Intervention Patients received monoclonal antibodies by intravenous administration or subcutaneous injection. Antibodies with different dosages were considered as different interventions.

Comparator Patients received placebo.

Study designs to be included RCT.

Eligibility criteria (1) reviews, cohort studies, case reports, letters, conference abstracts; (2) studies not written in English; (3) studies lacking original data.

Information sources PubMed, Embase, Cochrane library, and clinicaltrials.gov.

Main outcome(s) Myasthenia Gravis Activities of Daily Living [MG-ADL] score and Quantitative Myasthenia Gravis [QMG] score.

Quality assessment / Risk of bias analysis The certainty of evidence for each paired comparison was assessed by the Grading of Recommendations Assessment, Development and

Evaluation (GRADE) working group using the confidence in network meta-analysis (CINeMA) framework (32243458).

Strategy of data synthesis Mean difference (MD) with their 95% confidence intervals (95%CIs) were used to show effect size of continuous variables, while risk ratio (RR) with their 95%CIs were used to show effect size of categorial variables. Statistical heterogeneity between trials was estimated by I2 statistics. NMA was performed based on a Bayesian framework using the 'gemtc' package of the R software environment version 4.2.2 (26053422).Dichotomous and continuous outcomes were analyzed using lnRR and mean difference with their 95% credible interval (95%CrIs), respectively. The selection of fixed or random model effect was based on the outcome of I2 statistics.The publication bias was checked by generating funnel plots using STATA 17.0 (24098547), and an asymmetric distribution of the funnel plot indicates a significant publication bias.

Subgroup analysis NA.

Sensitivity analysis When heterogeneity existed (I2 < 50%), we adopted random effect model for analysis, otherwise we used fixed effect model.

Language restriction English.

Country(ies) involved China.

Keywords Generalized myasthenia gravis, Monoclonal antibodies, Meta-analysis.

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