INPLASY PROTOCOL

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None declared.

Efficacy and tolerability of minocycline in depressive patients with or without treatment-resistant: a meta-analysis of randomized controlled trial

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Review question / Objective: **(1) Participants: patients diagnosed by the guideline of the Diagnostic and Statistical Manual for Mental Disorders. Patients with major depressive disorder who did not get relieved from current antidepressant treatments were defined as treatment-resistant depression. (2) Intervention: depressive patients who were treated by minocycline. (3) Comparison: depressive patients who were treated by placebo. (4) Outcomes: primary outcome was the change of the Hamilton Depression Rating Scale and the Montgomery-Asberg Depression Rating Scale. Secondary outcomes including change of scale of Beck's Depression Inventory and Clinical Global Impression, and response or partial response of minocycline treatment. Safety outcomes were classified adverse events and all-cause discontinuation. (5) Study design: randomized controlled trial.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 December 2022 and was last updated on 13 December 2022 (registration number INPLASY2022120051).

INTRODUCTION

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change of the Hamilton Depression Rating Scale and the Montgomery-Asberg Depression Rating Scale. Secondary outcomes including change of scale of Beck's Depression Inventory and Clinical Global Impression, and response or partial response of minocycline treatment. Safety outcomes were classified adverse events and all-cause discontinuation. (5) Study design: randomized controlled trial.

Condition being studied: Depression is a leading cause of mental disability worldwide. major depressive disorder represents a more severe degree of depression which influenced 6% patient globally. In MDD, above 30% patients do not have adequate response after first line antidepressant treatments. Nowadays the mechanism of anti-inflammation in depression has been illustrated in previous study and minocycline has been applied in treating psychological disease based on this mechanism. Our meta-analysis aimed to discuss the efficacy and safety of minocycline in depressive patients with or without treatment resistant.

METHODS

Participant or population: Patients diagnosed by the guideline of the Diagnostic and Statistical Manual for Mental Disorders. Patients with major depressive disorder who did not get relieved from current antidepressant treatments were defined as treatment-resistant depressiondepressive patients who were treated by minocycline.

Intervention: Depressive patients who were treated by minocycline.

Comparator: Depressive patients who were treated by placebo.

Study designs to be included: randomized controlled trials.

Eligibility criteria: (1) conference abstracts and case reports;(2) studies without complete data; (3) studies not written in English; (4) studies with high risk.

Information sources: PubMed, Cochrane, and Embase.

Main outcome(s): Our study showed there was a statistical significance in depression severity score in depressive patients. In patients with treatment resistant depression, the result was also favorable in minocycline group. No statistical difference was found in response and partial response between minocycline and placebo group. However, after conducting a subgroup analysis of different depression severity scale, we found that there was a significant difference in the response to treatment evaluated by HAMD-17 scale in depressive patients with or without treatment resistant. As to safety outcome, minocycline group did not manifest more adverse events compared with placebo since no statistical difference was found between them.

Quality assessment / Risk of bias analysis: The risk of bias was evaluated by the Cochrane Collaboration tool and quality of included studies was assessed by GRADE scale.

Strategy of data synthesis: STATA was used for statistical analysis, dichotomous variables were expressed as risk ratio (RR) and 95% CI, continuous variables were expressed by standardized mean difference (SMD), Chi square q test and I2 were used to evaluate heterogeneity in our study.

Subgroup analysis: Subgroup analysis was conducted on different scales that assess depression severity. The response to treatment of different degrees of depression were also analyzed in our study.

Sensitivity analysis: Sensitivity analysis was done when heterogeneity was above 50%.

Language restriction: English.

Country(ies) involved: China.

Keywords: Minocycline, Depression, Treatment-resistant Depression, Major depressive disorder, Meta-analysis.

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