Mesenchymal stem cell therapy for paraquat poisoning: A systematic review and meta-analysis of preclinical studies

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Abstract

The aim of this study was to systematically review and analyze the published preclinical studies of MSC administration in the treatment of animal models of PQ poisoning to provide a basis for cell therapy of PQ poisoning.The electronic databases PubMed and CBMdisc were searched in this systematic review. The characteristics of MSC treatment of animal models of PQ poisoning were summarized. After quality assessment, relevant results were used to evaluate the effects of MSC transplantation. Publication bias was assessed.

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Guidelines

This systematic review and meta-analysis followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) criteria.

Protocol

Literature search

Step 1.

The PubMed and CBMdisc databases were searched, and the search was last updated on September 26, 2017. Medical subject headings (MeSH) combined with individual words were used to select the search terms. Terms used in the search included “Mesenchymal Stem Cell”, “Paraquat” and “Pulmonary”.

Study selection

Step 2.

All experiments evaluated animals with PQ poisoning treated with normal MSCs alone and a PQ damage group as a control. Reviews and repeated studies were excluded.

Risk of bias

Step 3.

Two reviewers assessed the risk of bias in each experiment using SYRCLE's Risk of Bias tool which is based on the Cochrane Risk of Bias tool and suit for animal intervention studies.

Statistical analysis

Step 4.

The following forms of discontinuous data were used for the data entry: (1) mean, standard deviation, number of animals in the PQ or MSC administration group; and (2) the P value between the two groups.