INPLASY

INPLASY202390006

doi: 10.37766/inplasy2023.9.0006

Received: 04 September 2023

Published: 04 September 2023

Efficacy and Safety Analysis of Selexipag in Pulmonary Hypertension: A Systematic Review and Meta-analysis

Mo, DG[1]; Dai, HY[2]; Guan, J[3].

Corresponding author:
De-Gang Mo

modegang1314@163.com

Author Affiliation:
Qingdao University.

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202390006

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 September 2023 and was last updated on 04 September 2023.

INTRODUCTION

Review question / Objective The objective is to investigate the current evidence from randomized double-blinded controlled trials of selexipag in the treatment of pulmonary hypertension. Population: Pulmonary hypertension patients. Intervention: Based on control group plus selexipag.Comparison: Placebo or other medications for pulmonary hypertension. Outcomes:6-min walk distance (6MWD), WHO functional class (FC), mean pulmonary artery pressure (mPAP), N-terminal pro-brain natriuretic peptide (NT-proBNP), cardiac index, pulmonary vascular resistance (PVR), all-causemortality, adverse events. Study design: a systematic review and meta-analysis of randomized controlled trials.

Rationale Selexipag as a new drug for the treatment of pulmonary hypertension. A systematic review and meta-analysis of randomized controlled trials is necessary.

Condition being studied Pulmonary hypertension (PH) is a life-threatening disease defined as mean pulmonary arterial pressure (mPAP) ≥20 mmHg at rest, as measured by right heart catheterization. At present, the incidence of pulmonary hypertension remains at a high level. And the prognosis of pulmonary hypertension patients is poor.

METHODS

Search strategy Terms：“pulmonary arterial hypertension or pulmonary hypertension or PAH or pulmonary artery pressure” and“selexipag or Uptravi or NS-304 or ACT 293987” and “randomized controlled trial or randomized or placebo or RCT”
Electronic databases：PubMed, Embase, Web of Science, Cochrance and ClinicalTrials.gov.

Participant or population Patients with pulmonary hpertension.

Intervention Selexipag.

Comparator Placebo or other medications for pulmonary hypertension.

Study designs to be included Randomized double-blinded controlled trials.

Eligibility criteria To be eligible for inclusion in the meta-analysis studies had to meet the following criteria: (a) inclusion of PH patients according to definition of WHO; (b) use of a randomized controlled design to make a comparison of selexipag with placebo or other medications for pulmonary hypertension; and (c) follow-up for 16 weeks or longer.The following exclusion criteria will be applied: (a) Studies that were not RCTs, (b) animal experiments, (c) RCTs that lacked cognitive assessment of either selexipag or placebo.

Information sources A literature search will be conducted in PubMed, Embase, Web of Science, Cochrane and ClinicalTrials.gov for randomized double-blinded placebo-controlled trials. The reference list of available review articles and meta-analyses will also be examined for additional candidates. Animal studies, non-randomized, non-double blinded, and non-controlled studies will be excluded from the present meta-analysis.

Main outcome(s) 6-min walk distance (6MWD), WHO functional class (FC), mean pulmonary artery pressure (mPAP), N-terminal pro-brain natriuretic peptide (NT-proBNP), cardiac index, pulmonary vascular resistance (PVR), all-cause mortality.

Additional outcome(s) The secondary outcomes of this study will include adverse events such as headache, nausea, diarrhoea, jaw pain.

Data management Two independent authors, Degang Mo. and Hongyan Dai., will extract data from the included studies. This includes demographic information, study design parameters, statistical methods, and primary and secondary outcomes.

Quality assessment / Risk of bias analysis Quality Assessment/Bias Analysis Risk in Reviewer Manager 5.3.1. The methodological quality will be assessed using the Cochrane Risk-of-Bias tool for randomized trials. It includes 7 main items: Random sequence generation (selection bias); Allocation concealment (selection bias); Blinding of participants and personnel (performance bias); Blinding of outcome assessment (detection bias); Incomplete outcome data (attrition bias); Selective reporting (reporting bias); and other bias.

Strategy of data synthesis RevMan 5.3.1 software was used for Meta-analysis. Risk ratios (RRs) for discontinuous outcomes, and weighted mean differences (WMDs) for continuous outcomes, with corresponding 95% confidence intervals (CIs) were computed for individual trials. Chi-squared and Higgins I2 tests were used to assess heterogeneity among included trials. If significant heterogeneity ($p \leq 0.10$ for Chi-squared test results or $I2 \geq 50\%$) was obtained, we used a random-effects (RE) model, otherwise a fixed-effects (FE) model was used.

Subgroup analysis None.

Sensitivity analysis None.

Language restriction No.

Country(ies) involved China.

Keywords Selexipag; Pulmonary Hypertension; Systematic Review and Meta-analysis.

Dissemination plans The article will be published in the journal as soon as it is completed.

Contributions of each author

Author 1 - De-Gang Mo - Author 1 - De-Gang Mo - Draft and complete the writing of the manuscript.
Email: modegang1314@163.com
Author 2 - Hong-Yan Dai - Author 2 - Hong-Yan Dai - The author provided statistical expertise, guided the writing of the article.
Email: daihy9@163.com
Author 3 - Jun Guan - The author read, provided feedback and approved the final manuscript.
Email: guanjun@medmail.com.can