

# INPLASY

## Efficacy of Pharmacological and Non-pharmacological Therapy for adult postherpetic neuralgia: A Systematic Review and Network Meta-analysis Protocol

INPLASY2024100018

doi: 10.37766/inplasy2024.10.0018

Received: 5 October 2024

Published: 5 October 2024

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### ADMINISTRATIVE INFORMATION

**Support** - None.

**Review Stage at time of this submission** - Preliminary searches.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY2024100018

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 5 October 2024 and was last updated on 5 October 2024.

### INTRODUCTION

**Review question / Objective** What's the most effective way to treat postherpetic neuralgia (PHN)? To evaluate and compare the clinical efficacy of different treatments of non-pharmacological and pharmacological therapies for PHN.

**Condition being studied** Post herpetic neuralgia is defined as pain that lasts for one month or more after the healing of the herpes zoster rash, and is the most common complication of herpes zoster. PHN is the most common type of neuropathic pain.

### METHODS

**Search strategy** 5 reviewers will independently search 6 electronic databases: the Cochrane Library, PubMed, Embase, Web of Science, CINAHL, MEDLINE. Searched from 20 of February until 20 of March 2025. There is no restriction of research date and languages.

We will follow PICOS guideline to form search strategy. The following terms will be considered: (1) P(population): postherpetic neuralgia patients aged over 18 years old. (2) I (intervention): Drug therapy comprises: ①Calcium channel blockers (pregabalin and gabapentin), ②Tricyclic antidepressants (amitriptyline) and 5% lidocaine patches; ③Opioid analgesics. Non-pharmacological therapies encompass acupuncture, electrical nerve stimulation, and minimally invasive intervention therapy. Each of the aforementioned intervention methods addresses distinct confounding variables; therefore, we will establish three separate control groups: "placebo and sham," "no intervention and waiting list," and "standard drug treatment." (3) C(Comparator): All kinds of pharmacologic and non-pharmacological interventions in order to prevent post-herpetic neuralgia or placebo or no treatment.

**Participant or population** Postherpetic neuralgia patients aged over 18 years old.

**Intervention** Drug therapy comprises: ①Calcium channel blockers (pregabalin and gabapentin), ②Tricyclic antidepressants (amitriptyline) and 5% lidocaine patches; ③Opioid analgesics. Non-pharmacological therapies encompass acupuncture, electrical nerve stimulation, and minimally invasive intervention therapy. Each of the aforementioned intervention methods addresses distinct confounding variables; therefore, we will establish three separate control groups: "placebo and sham," "no intervention and waiting list," and "standard drug treatment."

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**Comparator** All kinds of pharmacologic and non-pharmacological interventions in order to prevent post-herpetic neuralgia or placebo or no treatment.

**Study designs to be included** Only randomized controlled trials (RCT) will be included.

**Eligibility criteria** Inclusion criteria

We will omit randomized controlled trials (RCTs) in which the patients' primary health issue is not PHN or where the study failed to retain research data. The study will be excluded if it fails to meet the following criteria: studies do not have a control group that received a different treatment from the one being studied; studies do not demonstrate substantial efficacy of the target therapy compared to the other therapies; studies include individuals who are awaiting diagnosis; studies conduct pain research specifically focused on diseases other than PHN; studies have too broad inclusion criteria that include participants who do not meet the requirements of this study.

Exclusion criteria

We will exclude randomized controlled trials (RCTs) of participants whose primary health issue is not PHN, studies that do not retain complete study data.

Studies will be declined if they did not meet the following criteria:

- (1) They did not have a control group that received a different treatment from the one being studied;
- (3) Included individuals who were awaiting diagnosis;
- (4) Pain study on PHN, focusing on not PHN disorders;
- (5) Studies had too broad inclusion criteria that included participants who did not meet the requirements of this study.

**Information sources** The Cochrane Library, PubMed, Embase, Web of Science, CINAHL, MEDLINE.

**Main outcome(s)** Pain intensity, total effective rate of treatment, adverse reactions, sleep quality, and quality of life.

**Additional outcome(s)** None.

**Quality assessment / Risk of bias analysis**

Assessing the risk of bias will be performed independently by two reviewers, using the Cochrane risk of bias tool. If any disagreement exists, discuss with the third viewer to solve it. The following characteristics of the studies will be assessed: methods of randomization, treatment allocation, blinding, incomplete outcome data, selective reporting, other sources of bias.

**Strategy of data synthesis** We will use ADDIS v1.16.8 software for meta-analysis and heterogeneity assessment. For dichotomous data, we will analyze using odds ratios (OR); for continuous variables, we will use mean differences (MD). A 95% confidence interval (CI) will be used to estimate the range of values. The Q test will be used to detect heterogeneity among studies, and the  $I^2$  statistic will be used to assess the degree of heterogeneity. If  $I^2 \geq 50\%$  and  $p \leq 0.10$ , a random-effects model will be used for analysis. Conversely, if  $I^2 < 0.10$ , a fixed-effects model will be used.

**Subgroup analysis** Multiple interventions will be analyzed in the studies, and the variation may be explained by different types of interventions. If the appropriate data are available, subgroup analyses will be conducted depending on the various kinds of treatment.

**Sensitivity analysis** 1. Remove each study and conduct NMA again to observe the impact on effect evaluation.

2. Exclude small sample studies and evaluate the impact of sample size on the results.

3. Exclude studies with lower quality ratings and evaluate the impact of research quality.

**Country(ies) involved** China.

**Keywords** postherpetic neuralgia; network meta-analysis; pharmacological treatment; non-pharmacological treatment.

**Contributions of each author**

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