INPLASY PROTOCOL

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None declared.

Botulinum toxins for the treatment of Raynaud phenomenon: A systematic review with meta-analysis

Zhou, YN[1]; Yu, Y[2]; Bi, SW[3]; Cen, Y[4].

Review question / Objective: **Population: patients diagnosed with Raynaud phenomenon (RP);Intervention: Botulinum toxins (Btx) therapy;Comparison: other drug treatments, saline solution, no treatment or no controls; Outcomes: Shortened version of the Disabilities of the Arm, Shoulder, and Hand (Quick DASH) score and Visual Analogue Scale (VAS) pain score; Study design: randomized controlled trial (RCT), prospective case series, and retrospective case series.**
Condition being studied: **Raynaud phenomenon (RP) is a condition induced by cold or emotional stress. Primary RP occurs idiopathically while secondary RP is associated with other diseases, mainly connective tissue diseases. Patients with RP develop functional abnormalities in small vessel contraction and structural changes such as vascular wall fibrosis and calcification. Some may experience episodic vasospasms of the peripheral blood vessel, recurrent digital ulcers, possibly gangrene, and even amputation, which could impact patients' quality of life and require continuous medical interventions.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 October 2022 and was last updated on 24 October 2022 (registration number INPLASY2022100097).

INTRODUCTION

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METHODS

Participant or population: Patients diagnosed with primary or secondary Raynaud phenomenon.

Intervention: Botulinum toxins injection therapy.

Comparator: Other drug treatments, saline solution, no treatment or no controls.

Study designs to be included: Randomized controlled trial (RCT), prospective case series, and retrospective case series.

Eligibility criteria: The case report or abstract without a formal full-text paper was excluded.

Information sources: The databases of PubMed, Embase, Web of Science, and the Cochrane Central Register of Controlled Trials

Main outcome(s): Outcomes included Quick DASH score, VAS pain score, and complications. Quick DASH is an eleven-item questionnaire that assesses symptoms and physical function in people with one or more upper limb disorders. VAS is presented as a 10-cm line, anchored by verbal descriptors, usually 'no pain' and 'worst imaginable pain'.

Quality assessment / Risk of bias analysis: The modified Jadad scale was used to assess the quality of the risk of bias in RCT studies, and the methodological index for non-randomized studies (MINORS) was used to assess non-randomized studies (single-arm studies). The included retrospective studies without comparison group were assessed by JBI Critical Appraisal Checklist for Case Series.

Strategy of data synthesis: First, the continuous outcomes were extracted from the individual studies or calculated based on the mean change of patients with the corresponding outcome among all patients treated. Then, the standard mean change of continuous outcomes was pooled using a random-effect model. The effect size of the pooled results was represented by 95 % CI with an upper limit and a lower limit, and statistical significance was set at 0.05. Subsequently, the heterogeneity across studies was examined by the I2 statistic. Low I2 values (≤50%) suggested limited heterogeneity and a fixed-effect model was used for analysis, while I2 values >50% suggested moderate or high heterogeneity considering random-effects models. Moreover, the publication bias of results was evaluated in contour-enhanced funnel plots. All analyses were performed by the software R version 4.1.2 using the "metafor" package and the "metamedian" package.

Subgroup analysis: No.

Sensitivity analysis: No.

Country(ies) involved: China.

Keywords: Botulinum toxins; Raynaud phenomenon; systematic review; meta-analysis.

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Author 3 - Siwei Bi.
Author 4 - Ying Cen.