INPLASY PROTOCOL

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Support: **None.**

Review Stage at time of this submission: **Data extraction.**

Conflicts of interest:
None declared.

The association between Parkinson's disease and autoimmune diseases: a systematic review and meta-analysis

Li, MQ[1]; Wan, J[2]; Xu, ZH[3].

Review question / Objective: **The aim of this study is to summarize existing epidemiological studies on the association between Parkinson's disease with autoimmune diseases such as rheumatoid arthritis, multiple sclerosis, Sjögren's syndrome, systemic lupus erythematosus, inflammatory bowel disease, and bullous pemphigoid.**
Condition being studied: **Parkinson's disease (PD) is a progressive neurodegenerative disorder that exhibits clinically signs of rigidity, bradykinesia, postural instability, and tremor, affecting 1% of people over 60 years of age. Several academic studies have shown that Parkinson's disease has a high heredity as well as environmental influences, but the exact origin of Parkinson's disease is still mostly unknown. According to some studies, Parkinson's disease increases the likelihood of developing comorbidity with other diseases. Notably, Parkinson's disease and autoimmune illnesses have been linked in numerous publications, although there have only been a few, inconclusive epidemiological investigations on this association. It would be easier to determine the causes of both autoimmune disorders and Parkinson's disease if we had a better grasp of their comorbidity.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 August 2022 and was last updated on 22 August 2022 (registration number INPLASY202280088).

INTRODUCTION

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METHODS

Participant or population: Patients with autoimmune diseases and/or Parkinson's disease were included as review participants. Diagnosis of Parkinson's disease included records based on clinical or instrumental (ultrasound or imaging) diagnosis. Cases of autoimmune diseases were identified based on clinical or instrumental diagnosis.

Intervention: The prevalence, risk of developing autoimmune diseases with Parkinson's disease, and the prevalence or risk of developing Parkinson's disease with autoimmune diseases.

Comparator: Patients who did not have Parkinson's disease or autoimmune diseases.

Study designs to be included: Case-control, cross-sectional, and prospective or retrospective cohort studies are all included.

Eligibility criteria: Study inclusion criteria comprised peer-reviewed publications with population-based studies that reported an association between Parkinson's disease and any type of autoimmune diseases. Case reports and case series were excluded as their sampling from among, and thus representation of, the larger populations is unknown. Review papers, meta-analysis, organizational guidelines, editorial letters, and expert opinions were excluded in order to avoid duplication and erroneous weighting towards more frequently cited or discussed publications. Conference abstracts were also excluded as their full study reports were not obtainable to be assessed and their scientific rigor had not been peer-reviewed. Moreover, only studies published in English language journals were included.

Information sources: Four electronic databases including Pubmed, Embase, Web of Science Core Collection, and MEDLINE.

Main outcome(s): Summarize existing epidemiological studies on the association between Parkinson's disease and autoimmune diseases.

Quality assessment / Risk of bias analysis: The Newcastle-Ottawa Quality Assessment Scale was used to evaluate the possibility of bias in observational research. The scale assigns stars (up to 9 stars) based on the quality of selection, comparability, exposure and outcome of study participants.

Strategy of data synthesis: A random-effects model Inverse Variance method was used to estimate the summarized effect size, assuming heterogeneity always exist. We reported the pooled estimates as the weighted mean difference along with their respective 95% CI.

Subgroup analysis: Type of autoimmune diseases, type of study design, the ethnicity of study population.

Sensitivity analysis: After the data extraction stage is finished, the identified data will be used to assess whether sensitivity analyses are necessary.

Country(ies) involved: China.

Keywords: Parkinson's disease, autoimmune diseases, population study, comorbidity.

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