INPLASY

Use of gabapentin in patients diagnosed with carpal tunnel síndrome: a sytematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - Not reported.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202490128

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 September 2024 and was last updated on 29 September 2024.

INTRODUCTION

Review question / Objective Population: Patients diagnosed with carpal tunnel syndrome. Intervention: Gabapentin use. Comparison: Alternative treatments (e.g. placebo, other medications, physical therapy or surgery). Result: Relief of symptoms (pain, tingling, weakness), improved quality of life, side effects. Types of studies: Observational, case-control or cohort studies, Randomized clinical trials.

Condition being studied Carpal tunnel syndrome (CTS) is a neuropathy caused by compression of the median nerve in the carpal tunnel, and is one of the most prevalent neuropathies of the upper limbs.(1,2) It is estimated that CTS affects approximately 10% of population throughout life. In advanced stages of the condition, weakness and thenar atrophy may occur.(2)
CTS is more common in women, although the exact ratio between men and women can vary.(3) This condition occurs most frequently in individuals aged 50 to 54 years, followed by those aged 75 to 84 years.(4) The pathophysiology of CTS is multifactorial, with decreased carpal tunnel volume and increased pressure playing a crucial role in its development.(5) Median nerve injury is not only caused by compression, but also by nerve slippage in the transverse and longitudinal planes, which compromises the dissipation of mechanical stresses.(2)

METHODS

Participant or population Patients diagnosed with carpal tunnel syndrome.

Intervention Gabapentin use.

Comparator Alternative treatments (e.g. placebo, other medications, physical therapy or surgery).

Study designs to be included Observational, case-control or cohort studies, Randomized clinical trials.

Eligibility criteria Articles published in the last 15 years, free access, available in English and/or Portuguese, and involving patients diagnosed with carpal tunnel syndrome and combined use of gabapentin were included.
Articles published more than 15 years ago, articles not available for open access, articles that did not address the therapeutic use of gabapentin in carpal tunnel syndrome, as well as review articles, editorial letters and case studies were excluded.

Information sources The data search for the bibliographic survey was conducted in the following online databases: Medical Literature Analysis and Retrieval System Online (Pubmed/ Medline) and Cochrane Library.
The descriptors used were obtained from the Health Sciences Descriptors (DeCS) or the Medical Subject Headings (MeSH). In English: “Gabapatin”, “Carpal Tunnel”, “Treatment”. This combination was used with the Boolean connectives “and” or “or”.
The following combinations “Gabapatin and Carpal Tunnel” and “Carpal Tunnel and Treatment” were used in the databases. It is worth noting that the following filters were selected in the Pubmed/ Medline database: 10 years, clinical trial and randomized controlled trial. And in the Cochrane Library database, the period from 2014 to 2023 was selected.

Main outcome(s) The following combinations “Gabapatin and Carpal Tunnel” and “Carpal Tunnel and Treatment” were used in the databases. It is worth noting that the following filters were selected in the Pubmed/Medline database: 10 years, clinical trial and randomized controlled trial. And in the Cochrane Library database, the period from 2014 to 2023 was selected.

Quality assessment / Risk of bias analysis All data were analyzed using R programming software, version 4.4.0, with the meta package. Six meta-analyses were carried out.

Strategy of data synthesis All data were analyzed using R programming software, version 4.4.0, with the meta package. Six meta-analyses were carried out. The first was a meta-analysis of binary outcomes (occurrence or not of complications between studies that evaluated a treatment group and a control/placebo group) to evaluate adverse effects on patients (Figure 3). The other five meta-analyses were carried out using single means (Meta-analysis of single means) with random effects. The selected model allows us to compute a general average of all studies that reported the mean and standard error of the pain score (Visual Analogue Scale - VAS) and symptom severity (Symptom Severity Scale - SSS). The first two meta-analyses were carried out with studies that evaluated a Gabapentin dosage and a group. The first was carried out with the intervention group (Figure 4A) and its control group (Figure 4B). And the last three were carried out with studies that divided the study groups with Gabapentin treatment with 100mg, 300mg, and the control group. Meta-analyses were performed for these groups independently (Figure 5A-C). Furthermore, heterogeneity between studies was assessed using the Q statistic and the I2 test that describes the percentage of variability in effect estimates.

Subgroup analysis Not apply.

Sensitivity analysis Not apply.

Country(ies) involved Brazil.

Keywords Gabapentin tunnel carpal treatment.

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