

Ultrasound Radiomics for Diagnosing Carpal Tunnel Syndrome: a Protocol for Systematic Review and Meta-analysis

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ADMINISTRATIVE INFORMATION

Support - TSUM.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 September 2023 and was last updated on 20 September 2023.

INTRODUCTION

Review question / Objective This meta-analysis aims to investigate the role of ultrasound radiomics in the diagnosis of carpal tunnel syndrome (CTS) and compare it with other diagnostic approaches.

Condition being studied The population with CTS.

METHODS

Search strategy PubMed, Scopus. and Web of Science databases will be searched for the relevant studies without language restriction. Case reports, case series, conference abstracts, animal studies or those performed in laboratory settings will be excluded from the present meta-analysis.

Participant or population The population with CTS and the healthy controls.

Intervention Ultrasound radiomics.

Comparator Radiologists' evaluation.

Study designs to be included Cross-sectional, case-control, cohort studies and randomized controlled trial.

Eligibility criteria Clinical studies centered on the utilization of ultrasound radiomics for the diagnosis of carpal tunnel syndrome.

Information sources PubMed, Scopus and Web of Science databases will be searched for the relevant studies without language restriction.

Main outcome(s) The outcomes include sensitivity, specificity, positive likelihood, negative likelihood and diagnostic odds ratio for the diagnosis of CTS.

Quality assessment / Risk of bias analysis The Quality Assessment of Diagnostic Accuracy

Studies (QUADAS)-2 is used to assess the quality of the studies included in the meta-analysis. Based on the QUADAS-2 tool, each article is evaluated for the risk of bias in four domains (patient selection, index test, reference standard and flow and timing).

Strategy of data synthesis The relevant parameters encompassed sensitivity, specificity, positive predictive value, negative predictive value, positive likelihood ratio and negative likelihood ratio, which were pooled by employing the random effect model. The summary receiver operating characteristics analysis was used to compute the area under curve for the diagnostic examination, whereas the heterogeneity was assessed by I² statistics.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Language restriction No limitation of languages.

Country(ies) involved Taiwan.

Keywords Median nerve, neuropathy, ultrasound, artificial intelligence, machine learning.

Contributions of each author

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