# INPLASY PROTOCOL

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

**Conflicts of interest:**
**None.**

# Superb microvascular imaging for detecting neovascularization of carotid plaque compared with contrast-enhanced ultrasound：A protocol for systematic review and meta analysis

Zhou, Y[1]; Wang, C[2].

**Review question / Objective:** **This systematic review will investigate whether superb microvascular imaging is feasible on the detection of intraplaque neovascularization compared with contrast-enhanced ultrasound.**
**Condition being studied:** **Studies suggested that SMI may or may not detect neovascularization of carotid plaque with accuracy comparable to CEUS.**
**Information sources:** **PubMed, Web of Science, Cochrane Library, and Chinese biomedical databases will be searched**

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 July 2020 and was last updated on 21 July 2020 (registration number INPLASY202070097).

## INTRODUCTION

**Review question / Objective:** **This systematic review will investigate whether superb microvascular imaging is feasible on the detection of intraplaque neovascularization compared with contrast-enhanced ultrasound.**

**Condition being studied:** **Studies suggested that SMI may or may not detect neovascularization of carotid plaque with accuracy comparable to CEUS.**

## METHODS

**Participant or population:** The patients should be those who had undergone carotid atherosclerotic plaque formation.

**Intervention:** SMI.

**Comparator:** CEUS.

**Study designs to be included:** This study will only include high quality clinical cohort or case control studies.

**Eligibility criteria:** 2.1.1. Type of study. This study will only include high quality clinical cohort or case control studies that compare SMI with CEUS for evaluating IPN. 2.1.2. Type of patients. The patients should be those who had undergone carotid atherosclerotic plaque formation. 2.1.3. Intervention and comparison. IPNs of all patients were assessed with SMI and CEUS. 2.1.4. Type of outcomes. The primary outcomes include a semi-quantitative scoring system, through which IPN was graded by means of both SMI and CEUS.

**Information sources:** PubMed, Web of Science, Cochrane Library, and Chinese biomedical databases will be searched.

**Main outcome(s):** The primary outcomes include a semi-quantitative scoring system, through which IPN was graded by means of both SMI and CEUS.

**Quality assessment / Risk of bias analysis:** The quality of selected studies will be independently evaluated according to a tool for the quality assessment of methodological index for non-randomized studies(MINORS).

**Strategy of data synthesis:** The STATA version 15.1 software (Stata Corporation, College Station, TX, USA) will be used for meta-analysis. We calculated the pooled summary odds ratio (OR) and its 95% confidence interval (CI). The Cochran's Q-statistic and I2 test will be used to evaluate potential heterogeneity between studies. [13] If the Q-test shows a P50%, indicating significant heterogeneity, and the random effect model will be employed or if heterogeneity is not significant, the fixed-effects model was used.

**Subgroup analysis:** Sample size; IMVF Grade number.

**Sensibility analysis:** Sensitivity analysis will be performed to evaluate the influence of a single study on the overall estimate.

**Country(ies) involved:** China.

**Keywords:** carotid plaque; contrast-enhanced ultrasonography; intraplaque neovascularization; meta-analysis; superb microvascular imaging.

**Contributions of each author:**
Author 1 - Yang Zhou.
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