INPLASY PROTOCOL

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None.

Diagnostic accuracy of ultrasound superb microvascular imaging for parotid tumors

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Review question / Objective: **As a novel ultrasound technique, superb microvascular imaging can quickly, simply and noninvasively study the microvascular distribution in the tumor and evaluate the microvascular perfusion.The SMI adopts a multidimensional filter to eliminate only the clutter and to preserve low-velocity flow signals, whereas conventional Doppler systems use a single-dimension filter and, accordingly, can exhibit a loss of low-velocity flow signals that overlap with clutter.Studies suggested that superb microvascular imaging is helpful for the differentiation between benign and malignant parotid tumors. However, the results of these studies have been contradictory. Therefore, the present meta-analysis aimed at determining the accuracy of superb microvascular imaging in the differential diagnosis between benign and malignant parotid tumors.**
Condition being studied: **The SMI adopts a multidimensional filter to eliminate only the clutter and to preserve low-velocity flow signals, whereas conventional Doppler systems use a single-dimension filter and, accordingly, can exhibit a loss of low-velocity flow signals that overlap with clutter. Studies suggested that superb microvascular imaging is helpful for the differentiation between benign and malignant parotid tumors.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 October 2020 and was last updated on 09 October 2020 (registration number INPLASY2020100027).

INTRODUCTION

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METHODS

Participant or population: Parotid tumors patients.

Intervention: Superb microvascular imaging.

Comparator: Pathology.

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

Eligibility criteria: This study will only include high quality clinical cohort or case control studies. Type of patients: The patients should be those who had undergone parotid tumor.

Information sources: PubMed, Web of Science, Cochrane Library, and Chinese biomedical databases will be searched from their inceptions to the July 31, 2020, without language restrictions.

Main outcome(s): The primary outcomes include sensitivity, specificity, positive and negative likelihood ratio, diagnostic odds ratio, and the area under the curve of the summary receiver operating characteristic.

Quality assessment / Risk of bias analysis: Methodological quality was independently assessed by 2 researchers based on the quality assessment of studies of diagnostic accuracy studies (QUADAS) tool. The QUADAS criteria included 14 assessment items. Each of these items was scored as "yes" (2), "no" (0), or "unclear" (1). The QUADAS score ranged from 0 to 28, and a score ≥22 indicated good quality. Any disagreements between 2 investigators will be solved through discussion or consultation by a 3rd investigator.

Strategy of data synthesis: The STATA version 14.0 (Stata Corp, College Station, TX, USA) and Meta-Disc version 1.4 (Universidad Complutense, Madrid, Spain) soft wares were used for meta-analysis. We calculated the pooled summary statistics for sensitivity, specificity, positive and negative likelihood ratio, and diagnostic odds ratio with their 95% confidence intervals. The summary receiver operating characteristic curve and corresponding area under the curve were obtained. The threshold effect was assessed using Spearman correlation coefficients. The Cochrans Q-statistic and I test were used to evaluate potential heterogeneity between studies. If significant heterogeneity was detected (Q test P 50%), a random effects model or fixed effects model was used. We also performed sub group and meta-regression analyses to investigate potential sources of heterogeneity. To evaluate the influence of single studies on the overall estimate, a sensitivity analysis was performed. We conducted Beggs funnel plots and Eggers linear regression tests to investigate publication bias.

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Country(ies) involved: China.

Keywords: parotid tumors, meta-analysis, superb microvascular imaging.

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