INPLASY PROTOCOL

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Conflicts of interest:
None declared.

Efficacy and safety of ultrasound guided thermal ablation in the treatment of cervical lymph node metastasis of papillary thyroid carcinoma

Zhang, X[1].

Review question / Objective: **The preferred treatment for cervical lymph node metastasis(LNM) after thyroid papillary carcinoma (PTC) is reoperation. Ultrasound-guided thermal ablation for LNM is considered to be a safe, feasible and effective minimally invasive treatment method. It has a low incidence of complications, the volume of inactivated lymph nodes decreases or even disappears after treatment, and in situ recurrence is rare. Although thermal ablation is guided by ultrasound technology, there are still some limitations.**
Condition being studied: **The preferred treatment for cervical lymph node metastasis(LNM) after thyroid papillary carcinoma (PTC) is reoperation. Ultrasound-guided thermal ablation for LNM is considered to be a safe, feasible and effective minimally invasive treatment method. It has a low incidence of complications, the volume of inactivated lymph nodes decreases or even disappears after treatment, and in situ recurrence is rare. Although thermal ablation is guided by ultrasound technology, there are still some limitations.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 01 June 2022 and was last updated on 01 June 2022 (registration number INPLASY202260004).

INTRODUCTION

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METHODS

Participant or population: Was clearly diagnosed as LNM for papillary thyroid carcinoma; patients were older than 18 years; study data include changes of lymph node volume and serum Tg levels before and after thermal ablation, and complication records.

Intervention: No.

Comparator: No.

Study designs to be included: Nodular volume, serum thyroglobulin (Tg) level before and after heat ablation, the total complications and the incidence of major complications were analyzed.

Eligibility criteria: The standard errors of 95% confidence intervals were estimated using fixed or random effects models.

Information sources: PubMed PubMed Central(PMC) , EMBASE and Cochrane were examined. The inclusion and exclusion criteria were determined and the relevant data were extracted from Library(CENTRAL) and other databases for LNM thermal ablation of papular thyroid carcinoma. The data were analyzed using Stata15.1, Revman5.3 software, and the standard errors of 95% confidence intervals were estimated using fixed or random effects models.

Main outcome(s): Ultrasound guided thermal ablation is safe and effective in the treatment of thyroid papillary carcinoma (LNM). The ablation strategy of central LNM needs to be further explored and improved. It can be used as an alternative to surgical surgery for patients with high surgical risk or who refuse resurgery.

Quality assessment / Risk of bias analysis: After reading through the full text, the non-randomized study risk assessment method (newcastle-ottawa scale, NOS) was applied for quality evaluation. The evaluation index was 9 points, including: 4 points of study object selection, 4 points; comparability among groups, 2 points; exposure factors selection, 3 points; 4 points indicate good quality, <4 points indicate poor quality.

Strategy of data synthesis: The extracted data information includes: the general information of the study, Including the authors, Year of publication, country, Study type, Follow-up time, Number and location of cervical lymph node metastases, M-F, The mean age of the patients, Ablation method, etc.; Initial volume of LNM and percentage volume and nodule volume reduction at the last follow-up (Volume Reduction Ratio, VRR), VRR= (initial nodule volume-postoperative nodule volume) * 100 / initial nodule volume; Thyroglobulin values after surgery (Thyroglobulin, Tg); Complications of include both major and minor complications.Major complications include transient or permanent voice changes, tracheal, esophageal damage, skin burns, vomiting, mild, transient postoperative pain, burning sensation, neck swelling and discomfort as secondary complications.

Subgroup analysis: No.

Sensitivity analysis: Continuity data were compared by means (SMD), count data were compared by odds ratio (OR), statistical results were expressed in 95% CI, heterogeneity by I2, I2> 50% indicates heterogeneity, random effect model, fixed

effect model and P <0.0001.0The bias assessment was analyzed based on the funnel plot, and the sensitivity analysis was conducted on the effect of the combined effect values was conducted by excluding any one of the documents.

Country(ies) involved: China.

Keywords: papillary thyroid carcinoma; Lymph node metastasis; Ultrasonic guidance; Thermal ablation; Laser ablation;Radio frequency ablation; Microwaveablation.

Contributions of each author:
Author 1 - Xu Zhang.