INPLASY PROTOCOL

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Conflicts of interest:
None declared.

A network Meta-analysis of curative effect of different treatment methods on patients with brain metastasis of breast cancer

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Review question / Objective: **To explore the effect of different treatment methods on patients with brain metastasis of breast cancer.**
Condition being studied: **Breast cancer has become the malignant tumor with the highest incidence rate in the world. 10% - 20% of patients with advanced breast cancer will have brain metastasis . Patients with brain metastases have poor treatment effect, rapid progress and high mortality, and the survival time is only 2-25.3 months. The survival time of patients with brain metastasis is shorter and the treatment can be selected. At present, the treatment methods mainly include surgery, stereotactic radiotherapy and whole brain radiotherapy (WBRT) . This study mainly uses the method of network meta-analysis to collect the treatment effects of different treatment measures on patients with brain metastasis of breast cancer in recent years, evaluate and screen the current best clinical treatment scheme, and assist doctors in formulating clinical treatment schemes.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 May 2022 and was last updated on 10 May 2022 (registration number INPLASY202250054).

INTRODUCTION

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METHODS

Participant or population: The subjects included in the literature were definitely diagnosed as patients with brain metastasis of breast cancer. The age, race, course of disease and pathological type of breast cancer in the literature were not limited.

Intervention: This study mainly uses the method of network meta-analysis to collect the treatment effects of different treatment measures on patients with brain metastasis of breast cancer in recent years, evaluate and screen the current best clinical treatment scheme, and assist doctors in formulating clinical treatment schemes.

Comparator: Objective response rates were reported in 10 studies, interventions include 3D-CRT、SRT、SRT+Che、WBRT、WBRT+3D-CRT、WBRT+3D-CRT+Che、WBRT+Che.DCR was reported in 10 studies, and the interventions included 3D-CRT、SRT、SRT+Che、WBRT、WBRT+3D-CRT、WBRT+3D-CRT+Che、WBRT+Che.OS was reported in 10 studies, and the interventions included 3D-CRT、SRT、SRT+Che、WBRT、WBRT+3D-CRT、WBRT+3D-CRT+Che、WBRT+Che.

Study designs to be included: This study mainly uses the method of network meta-analysis to collect the treatment effects of different treatment measures on patients with brain metastasis of breast cancer in recent years, evaluate and screen the current best clinical treatment scheme, and assist doctors in formulating clinical treatment schemes.

Eligibility criteria: Inclusion criteria: (1) the subjects included in the literature were definitely diagnosed as patients with brain metastasis of breast cancer; (2) The document language is limited to Chinese and English; (3) The age, race, course of disease and pathological type of breast cancer in the literature were not limited; (4) The research of stereotactic radiotherapy and stereotactic radiotherapy; (5) The outcome indicators of the study included OS, objective remission rate and disease control rate.Exclusion criteria: (1) repeated publications without finding the original text; (2) Overview, experience summary, case report, meeting, meta-analysis, etc; (3) Brain metastases of breast cancer were not diagnosed correctly; (4) The intervention measures did not include whole brain radiotherapy, stereotactic radiotherapy and surgical treatment.

Information sources: Chinese Journal Full-text Database (CKNI), VIP Chinese science and Technology Journal Full-text Database (VP-CSJFD), Wanfang Data journal paper resources (Wangfang), PubMed, the Cochrane Library and EMBASE.

Main outcome(s): Objective response rates\OS.

Quality assessment / Risk of bias analysis: Two researchers used the Newcastle Ottawa (NOS) scale to evaluate the quality of the literature of the included cohort studies, including selection (4 items), comparability (1 item) and outcome (3 items). The highest score of each item of selection and outcome is 1, the highest score of comparable items is 2, and the total score of the evaluation result of the scale is 9. The score (0 ~ 4) is low-quality literature, and (5 ~ 9) is high-quality literature. The jadada scale was used to evaluate the quality of the included

randomized controlled studies. The evaluation contents included random grouping, allocation concealment, blind method and the description of loss of follow-up and withdrawal. The score (0 ~ 3) was divided into low-quality literature and (4 ~ 7) was divided into high-quality literature.

Strategy of data synthesis: Adopt stata16 0 software for network meta-analysis of binary variable data. The inconsistency test was used to analyze the overall consistency between direct evidence and indirect evidence. P > 0.05, it was considered that there was no consistency, and the consistency model was fitted. On the contrary, the inconsistency model was fitted. The node splitting method was used to test the local inconsistency between direct comparison and indirect comparison. P < 0.05, it was considered that there was local inconsistency. The count data were expressed by relative risk (HR) and its 95% confidence interval (CI). The efficacy of intervention measures is ranked according to the area under the cumulative probability (surface under the cumulative ranking, SUCRA) . The larger the area under the curve, the better the efficacy of intervention measures. When the number of literatures included in the outcome index exceeds 10, the publication bias was evaluated by funnel chart, and the publication bias was evaluated by visual observation of the symmetry of the distribution of points on the funnel chart.

Subgroup analysis: No subgroups.

Sensitivity analysis: None.

Language: The document language is limited to Chinese and English.

Country(ies) involved: China.

Keywords: Network meta-analysis; Breast cancer; Brain metastasis; Treatment measures.

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