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Dynamic Susceptibility Contrast-Enhanced Perfusion-Weighted Imaging in Differentiation Between Recurrence and Pseudoprogression in Glioblastoma: A Meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

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 28 October 2024 and was last updated on 28 October 2024.

INTRODUCTION

Review question / Objective It is important to differentiate between radiation injury (RI) and tumor recurrence (TR) in patients with glioblastoma after surgery and radiotherapy. Our objective was to evaluate the use of dynamic susceptibility contrast-enhanced perfusion-weighted imaging (DSC-PWI) to distinguish between TR and RI in patients with glioblastoma.

Condition being studied It is important to differentiate between radiation injury (RI) and tumor recurrence (TR) in patients with glioblastoma after surgery and radiotherapy.

METHODS

Search strategy (((((((perfusion- weighted imaging OR (PWI)) OR (perfusion MR)) OR (MR perfusion)) OR (dynamic susceptibility contrast-enhanced)) OR (DSC)) AND (((recurrence) OR (recurrent)) OR (progression))) AND (((radiation injury) OR

(necrosis)) OR (pseudoprogression)))AND (glioblastoma).

Participant or population Patients with glioblastoma.

Intervention Recurrence.

Comparator Pseudoprogression.

Study designs to be included Diagnostic studies.

Eligibility criteria Eligible studies for inclusion in this meta-analysis were those that (1) focused on diagnostic accuracy when distinguishing between postoperative PsP and RT in patients with glioblastoma, (2) used DSC-PWI as a diagnostic imaging approach, and (3) used diagnostic 2 × 2 tables. Studies were excluded if (1) they included fewer than 20 patients, (2) were animal studies, (3) were review articles, or (4) were case reports or case series.

Information sources PubMed, Cochrane Library, and Wanfang databases.

Main outcome(s) Diagnostic accuracy.

Additional outcome(s) None.

Quality assessment / Risk of bias analysis The Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) tool was used to gauge the risk of bias.

Strategy of data synthesis Stata 12.0 was used to conduct all statistical analyses.

Subgroup analysis Yes.

Sensitivity analysis No.

Country(ies) involved China.

Keywords Recurrence; Pseudoprogression; Magnetic resonance imaging; Perfusion; Glioblastoma.

Contributions of each author

Author 1 - Xue-Wen Wo.

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Author 3 - Na Xu.