INPLASY

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Application of MR and CT Enterography in the Diagnosis of Small Intestinal Tumor: a Systematic Review and Meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

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 14 August 2023 and was last updated on 14 August 2023.

INTRODUCTION

Review question / Objective To explore the application value of MR and CT enterography in the diagnosis of small intestinal tumor (SIT).

Condition being studied The length of small intestine and mucosal surface areaaccount for 75% and 90%of the whole alimentary tract, severally, but the primary tumors ofsmall intestine only accounts for 1-5% in gastrointestinal cancers. Limited by familiarity and vigilance of early clinical symptoms of small intestinal tumor (SIT) in physicians, the diagnosis and treatment of SIT are often delayed, and the lesion has entered the advanced stage once the palpation of abdominal mass is taken or complete intestinal obstruction is formed. The small intestine is coiled and overlapped in abdominal cavity, with large movement, which brings inconvenience to the imaging examination. Gastrointestinal barium meal has always been the first choice for examination, and CT enterography plays an increasingly prominent role in the diagnosis and evaluation of intestinal diseases with the development and improvement of CT technology, which clearly shows the lesions of intestinal wall and intestinal cavity, with easy operation and more acceptance to patients. MR has no ionizing radiation than CT, which is appropriate for pregnant women and children who are not suitable for CT examination, and its high soft tissue resolution could accurately display anatomical details of internal, parietal and external small intestine of patients and qualitatively analyze SIT. For example, T1-weighted SIT or lipomas containing fat components show high signals, and T2-weighted hemangiomas show obvious high signals. Previous studies have reported the application of MR and CT enterography in the diagnosis of SIT, showing inconsistent conclusions and also controversial clinical indicators in each study. Therefore, this study objectively evaluates the value of MR and CT enterography in the diagnosis of SIT through more comprehensive retrieval and screening, and

provides more basis for the selection and formulation of clinical treatment options.

METHODS

Participant or population Patients undergoing mri and/or CT enterography to diagnose SIT.

Intervention A controlled experiment or diagnostic study of MR and (or) CT enterography in the diagnosis of SIT.

Comparator A controlled experiment or diagnostic study of MR and (or) CT enterography in the diagnosis of SIT.

Study designs to be included Inclusion criteria. (1) A controlled experiment or diagnostic study of MR and (or) CT enterography in the diagnosis of SIT was included. (2) The article could directly or indirectly abstract data on true positive (TP), false positive (FP), true negative (TN) and false negative (FN) in Table (with the form of 2×2). (3) Taking histopathological examination as gold standard, all patients were diagnosed by gold standard. (4) The number of cases exceeded 10. (5) Chinese or English was publication language.

Eligibility criteria Inclusion criteria. (1) A controlled experiment or diagnostic study of MR and (or) CT enterography in the diagnosis of SIT was included. (2) The article could directly or indirectly abstract data on true positive (TP), false positive (FP), true negative (TN) and false negative (FN) in Table (with the form of 2×2). (3) Taking histopathological examination as gold standard, all patients were diagnosed by gold standard. (4) The number of cases exceeded 10. (5) Chinese or English was publication language.Exclusion criteria. (1) Articles with repetitive publication; (2) those as individual case report, letter, comment, animal experiment and reviews or those with incomplete clinical data; (3) patients who were not diagnosed by gold standard; and (4) the sample size less than 10 cases.

Information sources The Cochrane Library, PubMed, EMBASE, CINAHL, VIP database, Wanfang database and CNKI database. Language limited to Chinese and English.

Main outcome(s) Accuracy of MR and CT enterography in the diagnosis of SIT. Results of image analysis between the two groups. SROC curve of MR and CT enterography in the diagnosis of SIT. Analysis of publication bias**.**

Strategy of data synthesis The X2 test was taken to analyze the heterogeneity ofdiagnostic ratio of each study. I20.05 were not heterogeneous, using the fixed effect modelfor analysis. There was heterogeneity at I2≥50% and P<0.05, which was analyzed by random effect model. The sources of heterogeneity were analyzed, including threshold effect and non-threshold effect. Subsequently, a meta-analysis was performed on all included articles to calculate the combined sensitivity, specificity, and AUROC curve. All results were expressed as 95%CI, and P<0.05 indicated that the difference was statisticallysignificant.

Subgroup analysis None.

Sensitivity analysis None.

Country(ies) involved The countries involved in the article are all China.

Keywords MR; CT enterography; small intestinal tumor; diagnosis; system evaluation.

Contributions of each author
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Author 2 - Shengqiang Ye.
Author 3 - Chenglong Zhou.
Author 4 - Feng Liu.
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