INPLASY PROTOCOL

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None declared.

XRCC1 mutation affects cervical cancer's survival: a protocol for systematic review

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Review question / Objective: **Cervical cancer is the second most commonly diagnosed cancer and third leading cause of cancer death in females in less developed countries. Neoadjuvant chemotherapy (NACT) was proven to be an effective treatment for cervical cancer. However, approximately 20% of patients do not respond to NACT. The ability to predict the NACT non-responders could save time and allow selection of more suitable treatments.**
Condition being studied: **Cervical cancer is the second most commonly diagnosed cancer and third leading cause of cancer death in females in less developed countries. Neoadjuvant chemotherapy (NACT) was proven to be an effective treatment for cervical cancer. However, approximately 20% of patients do not respond to NACT. The ability to predict the NACT non-responders could save time and allow selection of more suitable treatments. In previous studies, no clinical factors have shown a strong correlation with the response to NACT. Additionally, there has been no biomarker proven to effectively predict the response to NACT. On one hand, using the candidate method has been difficult due to our limited understanding of the underlying biology; on the other hand, neoadjuvant chemotherapy regimens in different studies have been too inconsistent to obtain similar conclusions. Despite these difficulties, squamous cell carcinoma antigen (SCC-Ag) has been proven to be related to the response to NACT in several reports.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 March 2022 and was last updated on 17 March 2022 (registration number INPLASY202230079).

INTRODUCTION

Review question / Objective: **Cervical cancer is the second most commonly diagnosed cancer and third leading cause of cancer death in females in less developed countries. Neoadjuvant chemotherapy (NACT) was proven to be an effective treatment for cervical cancer. However, approximately 20% of patients do**

not respond to NACT. The ability to predict the NACT non-responders could save time and allow selection of more suitable treatments.

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METHODS

Participant or population: Cervical cancer patients.

Intervention: Gene mutation.

Comparator: Mutation carriers VS. wild type carriers.

Study designs to be included: Prospective studies, case-control studies, and interventional studies.

Eligibility criteria: Articles with cervical cancer and therapy were firstly searched out. During the first screening, articles concerning about cervical cancer and chemotherapy were included by reading the titles and abstracts of the articles; otherwise, they would be excluded. During the second screening, articles focusing on cervical cancer and NACT were excluded by reading the result section of the papers as well as the supplementary materials. Meanwhile, the selected articles must fulfill all of our criteria: the articles must be written in English; the articles must be original research articles; all cases in the articles were definitely diagnosed with cervical carcinoma; the included articles must be published in the journals following peer-review disciplines. During the third screening, articles with disease-free survival (DFS) data were included in the final analysis. Newcastle-Ottawa Scale (NOS) was adopted to evaluate the quality of the included studies.

Information sources: The English databases, "PubMed", "Embase" and the "Cochrane Library" were searched at the beginning of the present research.

Main outcome(s): Hazard ratio (HR) and corresponding 95% CI were extracted if they were provided in the articles.

Quality assessment / Risk of bias analysis: Funnel plot was employed to display and visually spot the publication bias that may exist during pooling across the studies. As funnel plot was unable to give a definite conclusion, non-parametric test (Begg's test) and parametric test (Egger's test) were also used in the study to detect the publication bias.

Strategy of data synthesis: As described above, the relationship between the mutation and long-term survival was measured by HR with 95% confidential interval (CI).

Subgroup analysis: Both RECIST criteria and WHO criteria were adopted to evaluate the CR by previous studies, so in this study we also investigated both criteria. In WHO criteria, tumor response was judged according to bidimensional measurements; in RECIST criteria, tumor response was judged by one dimension measurement. There were slight differences between the two response criteria (14). Both criteria were widely accepted as standard methods in assessing the CR among the field of

solid tumor research as well as among cervical cancer.

Sensitivity analysis: Sensitivity analysis was also employed to test the robustness of the pooling result; and also to detect the origin of the heterogeneity. The R statistical software was used to perform the statistical analysis.

Country(ies) involved: China.

Keywords: gene mutation, XRCC1, treatment, survival, mortality.

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