INPLASY

Sarcopenia was correlated with survival outcomes and post-treatment complications in gynecological cancer: a systematic review and meta-analysis

INPLASY202370031

doi: 10.37766/inplasy2023.7.0031

Received: 09 July 2023

Published: 09 July 2023

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ADMINISTRATIVE INFORMATION

Support - Miaozi Project in Science and Technology Innovation Program of Sichuan Province (2020079).

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202370031

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 July 2023 and was last updated on 09 July 2023.

INTRODUCTION

Review question / Objective The aim of this study was to investigate the potential influence of sarcopenia on the survival outcomes and occurrence rate of treatment-related complications gynecological cancer.

Condition being studied The potential influence of sarcopenia on the survival outcomes and occurrence rate of treatment-related complications gynecological cancer.

METHODS

Search strategy We used ("gynecological cancer" OR "gynecological carcinoma" OR "gynecological tumor" OR "gynecological neoplasm" OR "gynecological malignancy OR "gynecological malignancies OR "ovarian cancer" OR "ovarian carcinoma" OR "ovarian tumor" OR "ovarian neoplasm" OR "ovarian malignancy" OR "ovarian malignancies" OR "endometrial cancer" OR "endometrial carcinoma" OR "endometrial tumor" OR "endometrial neoplasm" OR "endometrial malignancy" OR "endometrial malignancies" OR "cervical cancer" OR "cervical carcinoma" OR "cervical tumor" OR "cervical neoplasm" OR "cervical malignancy" OR "cervical malignancies") AND ("sarcopenia" OR "muscles loss" OR "muscle attenuation" OR "muscle mass" OR "body composition") as primary search words.

Participant or population Patients with pathologically diagnosed ovarian cancer, endometrial cancer, cervical cancer.

Intervention Accompanied by or not accompanied by sarcopenia.

Comparator Accompanied by or not accompanied by sarcopenia.

Study designs to be included Prospective studies or retrospective studies.

Eligibility criteria The main inclusion criteria included: 1) containing either original data (number of events in test group, number of events in control group, total number of cases in test group, total number of cases in control group) or summarized statistical magnitude (hazard ratio, HR mainly) in terms of the survival state or occurrence rate of complications in sarcopenia and non-sarcopenia group; 2) being a retrospectively or prospectively designed study; 3) having reported the detailed diagnosing protocol for sarcopenia based on CT, MRI, ultrasound, or other imaging techniques, including the calculating patterns for significant parameters like skeletal muscle index (SMI), skeletal muscle area (SMA), etc. The main exclusion criteria included: 1) failing to report the treatment schemes of the patients; 2) unavailability of 95% confidence interval (95% CI) of HR (sarcopenia vs non-sarcopenia) in terms of OS, PFS, various types of treatment related complications under the condition of simultaneous lacking of original data in which case the 95% CI could not be calculated; 3) being a meeting or conference abstract, letter to the editor, case report, cases series (the number of cases less than 20); 4) studies recruiting patients with concomitant tumors other than ovarian cancer, endometrial cancer or ovarian cancer.

Information sources With a purpose to substantially search articles with relation to the potential influence on survival state and occurrence rate of treatment-related complications by sarcopenia in gynecological cancer, an embedded search was performed in databases including Pubmed/Medline, Embase, and Cochrane Library.

Main outcome(s) Key data to calculate HR (hazard ratio) including number of events in sarcopenia group, number of events in non-sarcopenia group, total number of patients in sarcopenia group, total number of patients in non-sarcopenia group.

Quality assessment / Risk of bias analysis After excluding articles which were unsuitable to the current study, we performed quality evaluation of the included studies based on the risk of bias tool from Review Manager 5.4 (Cochrane Collaboration, Copenhagen, Demark). WL and MZ participated in the quality assessing process individually and YZ would join the process if divergenceoccurred.

Strategy of data synthesis Stata 17MP (StataCorp LLC, Texas, The United States) was applied to integrate the pooled HR in terms of survival state mainly manifested by OS and PFS or odds ratio (OR) in terms of treatment-related complications. Specifically, fixed effects analysis was applied when I-square was lower than 50% while random effects model was applied when I-square was higher than 50% or substantial heterogeneity between studies was found. The heterogeneity manifested by I-square was determined by Q-test.

Subgroup analysis With a purpose to look for influencing factors that might alter the HR (sarcopenia vs non-sarcopenia) in terms of OS and PFS, a subgroup analysis was performed using indicators of age, BMI, and cut-off values for SMI. Stata 17MP (StataCorp LLC, Texas, The United States) was put into use for subgroup analysis. If positive correlation was established in subgroup analysis, Credibility of Effect Modification Analyses would be subsequently applied.

Sensitivity analysis None.

Language restriction English only.

Country(ies) involved China - West China Second University Hospital, Sichuan University.

Other relevant information None.

Keywords Sarcopenia; gynecological cancer; cachexia; survival; complications.

Contributions of each author

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