INPLASY PROTOCOL

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Corresponding author:
Hong-min Liu

liuhm@zzu.edu.cn

Author Affiliation:
Zhengzhou University.

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None declared.

Systematic review and meta-analysis of LSD1 expression as a prognostic biomarker of cancer survival and disease progression

Agboyibor, C[1]; Dong, J[2]; Effah, CY[3]; Drokow, EK[4]; Pervaiz, W[5]; Liu, Z[6]; Liu, HM[7].

Review question / Objective: **Numerous studies on the prognostic significance of lysine-specific demethylase 1 (LSD1) up-regulation in tumors have different outcomes. The inconsistency originating from various studies looking into the association between LSD1 and tumor cells has prompted the decision of this quantitative systematic review to decipher how up-regulated LSD1 and overall survival (OS) or recurrence free survival (RFS) or disease free survival (DFS) are linked in tumor patients.**
Condition being studied: **One of the leading causes of death worldwide is tumor. As a result of that, there has been a significant enhancement in the investigation, treatment methods, and good maintenance practices on cancer, but unfortunately, the prognosis of cancers remains very stumpy. The reason for this could be the limited detection approaches for cancer patients in their initial phases and also the ever-increasing recurring nature of cancers. The vital means of enhancing the prognosis of cancers are timely diagnosis and remedy. However, the sensitivity and specificity of a lot of tumor biomarkers are not adequate. Hence, it is of inordinate significance to ascertain novel biomarkers to forecast the prognosis and therapy targets for tumors. LSD1 is strongly associated with tumors and has a great impact on treatment efficacy of tumor patients.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 August 2021 and was last updated on 03 August 2021 (registration number INPLASY202180011).

INTRODUCTION

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METHODS

Participant or population: The patient with tumors considered having up-regulated LSD1. Gender and tumor type not restricted.

Intervention: This is not a treatment/control experiment.

Comparator: This is not a case/control study.

Study designs to be included: This study will comprehensively collect high-quality retrospective data from tumor patients with up-regulated LSD1.

Eligibility criteria: The parameters that will be considered before a study will be selected in our meta-analysis are: 1) Studies with human tissues considered to have LSD1 up-regulation. 2) Tumor cell confirmation must be done pathologically or histologically. 3) The estimated link between up-regulated LSD1 and survival must be determined. 4) To assess the OS or RFS or DFS of tumor patients, studies should have adequate available data that will aid in the evaluation of the various HRs and their 95% CIs or odds ratio (OR).

Information sources: For this meta-analysis, we will sample peer-reviewed articles published up to September, 2020. We will carry on a search in Web of Science Core, PubMed, Embase, Google Scholar, Scopus Cochrane library, Wanfang database and China National Knowledge Infrastructure to recognize pertinent researches. The search will screen studies with the following keywords: "LSD1 and tumor", "neoplasm and carcinoma", "malignant and survival" and "prognosis and prognostic". The recovered studies references will also be examined for additional suitable works to prevent loss of connected studies.

Main outcome(s): The primary outcomes of this study resolve the prognostic consequence of up-regulated LSD1.

Quality assessment / Risk of bias analysis: The Cochrane handbook provides the risk of bias assessment tool and this would be adopted for this study. Two authors (AC and EYC) will evaluate the risk of bias following 1) random sequence generation, 2) Concealment of allocation sequence 3) blindness of participants and personnel 4) blinding of outcome assessment 5) incomplete outcome data 6) selective outcome reporting 7) other sources of bias. The key to this assessment will be L (a bias which is low), U (a bias which is unclear) and H (a bias which is high). There will be a discussion between the reviewers to resolve all their discrepancies.

Strategy of data synthesis: Data will be analyzed and synthesized using RevMan v.5.3. The 95% CIs and their hazard ratios will be used for the analysis. Random effect model will be used for those data where heterogeneity was detected while fixed effect model will be used for data where heterogeneity was not detected. The heterogeneity amongst studies will be estimated using chi2 and I2 statistics. For

the I2 test, the criteria for heterogeneity will be as follows: I275%.

Subgroup analysis: There is no pre-subgroup analysis plan for this study. Subgroup analysis will be conducted when there is heterogeneity in the study. Heterogeneity is manifested in several aspects including age, gender, HR estimate, tumor size, tumor type and ethnicity.

Sensitivity analysis: The evaluations of the robustness of the main study outcome are done by removing low-level quality study one by one and merge the data to evaluate the impact of sample size, study quality, statistical method and missing data on the results of the meta-analysis.

Language: English.

Country(ies) involved: China.

Keywords: Up-regulated LSD1; esophageal tumor; meta-analysis, cancer patients; overall survival.

Contributions of each author:
Author 1 - Clement Agboyibor.
Author 2 - Jianshu Dong.
Author 3 - Clement Yaw Effah.
Author 4 - Emmanuel Kwateng Drokow.
Author 5 - Waqar Pervaiz.
Author 6 - Zhenzhen Liu.
Author 7 - Hong-Min Liu.