INPLASY PROTOCOL

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None declared.

Crosstalk between Ferroptosis and Chondrocytes in Osteoarthritis: A Systematic Review of in-vivo and in-vitro Studies

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Review question / Objective: **For the sake of better apprehending the nexus between ferroptosis and chondrocytes in osteoarthritis (OA), proffering novel insights and opening-up new orientation for in-depth research in both pre-clinical and clinical settings, it is warranted to initiate one rigorous and robust systematic review (SR) based upon up-to-date in-vivo and in-vitro research advances on this topic. To the best our knowledge, no SRs concerning ferroptosis and chondrocytes in OA have been published thus far.**
Condition being studied: **Osteoarthritis (OA) is the most common form of arthritis, which menaces 7% of the human population globally. With the aged tendency of population and higher rates of obesity, the incidence of OA is anticipated to proliferate, which will entail a mounting impact and major challenges for global health care and each country's public health systems unavoidably. In virtue of the onset of OA is mighty knotty, its etiology and underlying molecular mechanisms have not been expressly expounded. However, the salient role that cartilage degeneration acts in the progression of OA has been widely acknowledged. Chondrocytes are consequential for the safeguard of cartilage homeostasis and the functional integrity of the articular cartilage. Once the homeostatic equilibrium of the extracellular matrix (ECM) synthesis and degradation is smashed, OA comes up.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 March 2023 and was last updated on 14 March 2023 (registration number INPLASY202330044).

INTRODUCTION

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METHODS

Search strategy: A systematic search of Embase, Ovid, ProQuest, PubMed, Scopus, the Cochrane Library, and Web of Science was carried out from the inception of the database to January 31st, 2023. The following were the Medical Subject Headings terms and free words used: ("ferroptosis" OR "iron death" OR "iron overload") AND ("osteoarthritis" OR "osteoarthritides" OR "osteoarthrosis" OR "degenerative arthritis" OR "arthroses" OR "osteoarthrosis deformans"). Detailed information about the retrieval strategy can be found in the Supplementary Materials.

Participant or population: Cell and/or animal experiments highly linked with cartilage ferroptosis in OA.

Intervention: Intervention is not required for the present descriptive systematic review.

Comparator: Comparator is not required for the present descriptive systematic review.

Study designs to be included: (1) literature highly linked with cartilage ferroptosis in OA; (2) required to contain cell and/or animal experiments.

Eligibility criteria: The inclusion criteria were as follows: (1) literature highly linked with cartilage ferroptosis in OA; (2) required to contain cell and/or animal experiments and (3) English-language literature. The exclusion criteria were as follows: (1) review papers, dissertation papers, letters, commentaries, editorials, conference abstracts, meta-analyses, case reports or bioinformatics analysis solely; (2) the same studies published in different journals under the same or different titles; (3) inaccessible full text.

Information sources: Embase, Ovid, ProQuest, PubMed, Scopus, the Cochrane Library, and Web of Science.

Main outcome(s): The following data were collected: author (year), country, cell type and source, animal species, animal age, weight and gender, sample size, core study design, approaches of drug delivery, duration of intervention, outcome measures, and pivotaldiscovery.

Quality assessment / Risk of bias analysis: The in-vivo studies' risk of bias evaluation was performed independently by two researchers using Review Manager 5.3 (Cochrane Collaboration, Oxford, UK), according to the Systematic Review Centre for Laboratory animal Experimentation (SYRCLE)'s risk of bias tool. For cellular experiments, two above-mentioned authors independently assessed by the bias risk table for chondrocyte experiments adapted from previous studies. All discrepancies were resolved by discussion and adjudication of a third researcher.

Strategy of data synthesis: Subgroup analyses are not required for the present descriptive systematic review.

Subgroup analysis: Subgroup analyses are not required for the present descriptive systematic review.

Sensitivity analysis: Sensitivity analyses are not required for a descriptive systematic review.

Language restriction: English.

Country(ies) involved: People's Republic of China.

Keywords: ferroptosis; chondrocytes; osteoarthritis; crosstalk; systematic review.

Contributions of each author:

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