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Efficacy of Nanocarrier-based Drug Delivery in Oral Cancer Therapy: A Systematic Review and Meta-analysis

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ADMINISTRATIVE INFORMATION

Support - King Khalid University.

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 26 October 2024 and was last updated on 26 October 2024.

INTRODUCTION

Review question / Objective To gauge the efficacy and impact of a nano-carrier-based drug delivery system versus a conventional drug delivery system.

Rationale A review of all the data and complications rates for nanocarrier drug delivery systems, which may help practitioners and researchers as guidance knowledge to refresh the research on novel, safe and effective nano drug delivery systems or treatment methods to reinstate patient outcomes.A compilation of all evidence and complication rates with nanocarrier drug deliverysystems,

Condition being studied Nanocarrier drug delivery system.

METHODS

Search strategy This literature search spanned PubMed, ScienceDirect, the Cochrane Library, Google Scholar, and Scopus with PRISMA criteria for relevant in vitro and in vivo (human) studies.

Participant or population Only randomized controlled trials (RCTs), case-control studies, in vitro studies.

Intervention Nanoparticle delivery system.

Comparator Alternative drug delivery system or placebo.

Study designs to be included Only randomized controlled trials (RCTs), case-control studies, in vitro studies.

Eligibility criteria Studies published in English. Studies published as original research articles.

Information sources PubMed, Cochrane, Dimensions.ai, and Google Scholar.

Main outcome(s) Nanoparticle-based drug delivery is a better solution than free-form drug delivery to improve the efficacy and safety of oral cancer treatment.

Data management Microsoft Excel (Excel 365; Microsoft Corp., Redmond, WA, USA).

Quality assessment / Risk of bias analysis Two researchers independently assessed the risk of bias of the included articles using —JBI critical appraisaltools.

Strategy of data synthesis Two review authors used the studies to help select studies and document their decisions. This was done in two stages, with the first stage consisting of a title and abstract screening of all studies against the inclusion criteria, and the second stage being a full text assessment of papers that were deemed potentially relevant based on the initial screening.

Subgroup analysis
The data was compiled from a variety of articles:
• Author(s), year of publication, country, study design.
• Total number of patients/datasets.
• Training/validation datasets.
• Test datasets.
• Aim of the study.

Sensitivity analysis None.

Language restriction Articles only in English were Selected.

Country(ies) involved USA, Saudi Arabia , Armenia.

Other relevant information NA.

Keywords Nano-particles drug delivery system, treatment, OSCC, oral cancer.

Dissemination plans Data will be shared after the publication.

Contributions of each author
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