INPLASY

Exploring the Relationship between Single Nucleotide Polymorphisms and Metastasis Among Adults Diagnosed with Breast Cancer: A Systematic Review

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ADMINISTRATIVE INFORMATION

Support - N/A.

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 02 August 2024 and was last updated on 02 August 2024.

INTRODUCTION

Review question / Objective For this systematic review, we wished to know "What single nucleotide polymorphisms are associated with metastasis-related outcomes among adults diagnosed with breast cancer within the last 5 years?"

Rationale This knowledge is critical to inform future hypothesis-driven and validation research aimed at enhancing clinical decision-making for breast cancer patients.

Condition being studied Our primary goal was to conduct a systematic review and synthesize the existing body of scientific knowledge on the candidate genes and their respective single nucleotide polymorphisms (SNPs) associated with metastasis-related outcomes (i.e., metastasis, distant metastasis, other organ metastasis, lymph node metastasis, nodal status, lymph node involvement, lymph node invasion, vascular invasion, and lymphatic invasion) among patients diagnosed with breast cancer.

METHODS

Search strategy Pubmed 9/13/2023 (46 results)
(((breast cancer[MeSH Terms]) AND ("metasta*"[Title/Abstract] OR "prognosis"[Title/Abstract])) AND (genetic variation[MeSH Terms])) AND (polymorphism, single nucleotide[MeSH Terms]) - 80 results
Filters applied: in the last 5 years, Humans, Adolescent: 13-18 years, Adult: 19+ years.

Embase 9/13/2023 (244 results)
#1 AND 'human'/de AND ([adult]/lim OR [aged]/lim OR [very elderly]/lim) AND 'article'/it
#1 'breast cancer'/exp AND 'genetic polymorphism'/exp AND 'metastasis'/exp AND [2018-2023]/py
Filters applied: 2018-2023.

Participant or population Adults aged 18+ years diagnosed with breast cancer.

Intervention N/A.

Comparator N/A.

Study designs to be included Case/control; Cohort.

Eligibility criteria
Inclusion criteria:
1) Human adults 18+
2) Diagnosed with breast cancer
3) Focus on association of genetic variants (SNPs) and metastasis
4) Primary literature
5) Peer-reviewed
6) Available in English
7) Full-text available

Exclusion criteria:
1) Animal or plant studies
2) Children < 18
3) Drug/therapy/PGX study
4) Gene association with underlying biological mechanisms associated with metastasis (indirect association to metastasis)
5) Grey literature (not peer-reviewed)
6) Secondary literature
7) Full text article unavailable.

Information sources Electronic databases with peer reviewed articles were used to identified relevant articles.

Main outcome(s) The main outcome of interest was metastasis as it relates to breast cancer.

Data management Using Covidence systematic review software (Veritas Health Innovation, Melbourne, Australia) to facilitate the screening process, all articles from the initial search were exported into the software.

Quality assessment / Risk of bias analysis Methodological quality of the articles was informed by the JBI Case Control and Cohort criteria.

Strategy of data synthesis Using PRISMA guidelines, literature searches were conducted on September 13th, 2023, using PubMed and Embase databases. Peer-reviewed articles were selected if authors reported on single nucleotide polymorphisms directly associated with metastasis among adults diagnosed with breast cancer. Three reviewers completed the article screening process which resulted in 86 articles meeting the study inclusion criteria.

Subgroup analysis N/A.

Sensitivity analysis N/A.

Language restriction English.

Country(ies) involved United States (University of Florida College of Nursing.

Keywords single nucleotide polymorphisms; genetic variants; breast cancer; metastasis.

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