
Prehabilitative interventions for solid tumor cancers: A scoping review protocol

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Abstract

The objective of this scoping review is to assess the extent of the literature on prehabilitation interventions for cancer patients undergoing surgery or chemotherapy, with specific emphasis on the components utilized in prehabilitation interventions. A significant portion of individuals with cancer experience disability and decreased quality of life as a result of cancer treatment. While prehabilitative interventions have the potential to improve functional and psychological outcomes, they are seldom part of cancer care. This may be due to the absence of a standardized definition of 'prehabilitation', and its key components. A scoping review will therefore be conducted to survey the range of components included in comprehensive prehabilitation. The target population of this review is adult pre-surgery or pre-chemotherapy patients with solid tissue tumors (patients with basal cell skin cancers will be excluded). Cancer prehabilitation will be defined as any physical or psychological intervention that occurs between the time of a cancer diagnosis and the beginning of acute treatment, in the context of any medical setting providing cancer care, to improve patient functioning during and after treatment. Relevant studies, published in English, will be identified using PubMed, CINAHL, Scopus, Embase, ProQuest Dissertations & Global Theses, and NARIC/REHABDATA . All identified citations will be collated and uploaded into Covidence, and screened by two or more independent reviewers for assessment against the inclusion criteria for the review. The full text of selected citations will be assessed in detail against the inclusion criteria by two or more independent reviewers.

Introduction

Half or more of individuals with cancer experience functional impairments (difficulty with mobility, cognition), disability (inability to fulfill valued social roles such as working and participating in community activities), and decreased quality of life during and after treatment. Individuals with gynecologic (GYN) cancers are especially vulnerable to disability: Among GYN cancer survivors, our prior work demonstrates that 60% experience cancer-

related mobility disability (Campbell et al., 2016). We have shown that 62% of the variance in the prevalence of mobility disability is explained by modifiable factors such as fatigue and pain. Moreover, our work suggests that loss of function is concerning to patients and that functional assessment is feasible and acceptable to patients in this clinic. Early initiation of rehabilitation (physical activity with physical/occupational/psychological therapy as needed) intervenes on modifiable factors to decrease cancer-related disability and improve quality of life, yet it is rarely part of cancer care: a landmark study (Pergolotti et al., 2015) found that of adults with cancer-related functional impairment, fewer than 10% receive any rehabilitation as part of their cancer care. Fewer still receive preventive rehabilitation, or “prehabilitation,” prior to beginning cancer treatment. One reason for this lag is that there is currently no standardized definition of prehabilitation and its key components. Some sites equate prehabilitation with Early Recovery After Surgery (ERAS) protocols; others simply recommend that patients begin a walking program before treatment.

To address the lack of a standardized definition of comprehensive prehabilitation, we will undertake a scoping review to appraise the prehabilitation literature to identify the range of components included in comprehensive prehabilitation.

A preliminary search of PubMed, the Cochrane Database of Systematic Reviews, and *JB/ Evidence Synthesis* was conducted and identified three published reviews on prehabilitation for cancer surgery (Hijazi et al., 2017; Saggu et al., 2022; Tsimopolou et al., 2015). These reviews, however, differ from the proposed review in that they either focused on psychological prehabilitation exclusively (Tsimopolou et al., 2015), or on a specific type of cancer: abdominal (Hijazi et al., 2017) or gynaecological (Saggu et al., 2022). No review has yet used the scoping method to investigate the range of interventions used for prehabilitative cancer treatment.

Therefore, the objective of this scoping review is to assess the extent of the literature on prehabilitation cancer interventions. This review will focus on interventions for adult, pre-surgery or pre-chemotherapy patients, with solid tissue tumors.

Review question

What interventions have been used for pre-habilitative cancer treatment?

Keywords

Cancer prehabilitation; cancer pre-habilitation; solid tissue tumors

Eligibility criteria

Participants

- Solid tissue tumors; excluding: samples with exclusively basal cell skin cancers
- Patients ≥ 18 years
- All genders
- Pre-surgery or pre-chemotherapy patients

Concept

Cancer prehabilitation describes a range of physical and psychological interventions that occur between the time of a cancer diagnosis and the beginning of acute treatment (Silver & Baima, 2013). In a preliminary scan of the literature, prehabilitative interventions that have been addressed include, but may not be limited to: exercise/physical activity (independent or group); physical or occupational therapy; speech language pathology or other cognitive therapy; psychological support and counselling; nutritional interventions.

Context

The context for this review is any medical setting providing prehabilitative care for cancer. There are no race-specific or gender-specific interests.

Types of Sources

This scoping review will consider both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies. In addition, analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies will be considered for inclusion. This review will also consider descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies for inclusion.

Systematic reviews will not be included directly. Rather, reference lists of any systematic reviews identified by our literature search will be examined and titles and abstracts of any included studies not already identified by our literature search will be added to Covidence for screening and possible review.

Methods

The proposed scoping review will be conducted in accordance with the JBI methodology for scoping reviews (Peters et al., 2020).

Search strategy

The search strategy will aim to locate both published and unpublished studies (dissertations and theses). An initial limited search of PubMed, CINAHL, and Embase was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for the three data bases. The search strategy, including all identified keywords and index terms, will be adapted for each included database. The reference list of all included sources of evidence will be screened for additional studies.

Only studies published in English, since January 2013, will be included. The period for article of publication is justified by the increased focus on prehabilitation treatments in oncology literature following the article by Silver and Baima (2013).

The databases to be searched are: PubMed, Embase, CINAHL, Scopus, and NARIC/REHABDATA . Sources of unpublished studies/ gray literature to be searched include: ProQuest Dissertations & Theses Global.

Study/Source of Evidence selection

Following the search, all identified citations will be collated and uploaded into Covidence and duplicates removed. Following a pilot test, titles and abstracts will then be screened by two or more independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant sources will be retrieved in full and their citation details imported into Covidence. The full text of selected citations will be assessed in detail against the inclusion criteria by two or more independent reviewers. Reasons for exclusion of sources of evidence at full text that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion, or with an additional reviewer/s. The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram (Trico et al., 2018).

Data Extraction

Data will be extracted from papers included in the scoping review by two or more independent reviewers using the data extraction tool Covidence. The following information will be extracted from the reviewed articles and compiled in a results table:

1. Author(s)
2. Year of publication
3. Study population & sample size
4. Study design
5. Theoretical framework (if applicable)
6. Pre-habilitative intervention components
7. Length of intervention
8. Comparator group (if applicable)
9. Summary of study conclusions

Data Analysis and Presentation

Extracted data will be presented in form of a table, with an accompanying narrative summary that describes how the results relate to the review's objective.

Funding

This review was funded by the Gordon and Betty Moore Foundation through the Betty Irene Moore Fellowship for Nurse Leaders and Innovators, grant GBMF9048.

Conflicts of interest

The authors do not have any conflicts of interest to report.

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Appendices

Appendix I: Search strategy

Below is the search strategy to be used for PubMed

("occupational therapy"[MeSH Terms] OR "physical therapy modalities"[MeSH Terms] OR "Pre operative Conditioning" [tiab:~5] OR "Pre operative Exercise" [tiab:~5] OR "Pre operative Rehabilitation" [tiab:~5] OR "Prehabilitation" [tiab] OR "Preoperative Conditioning" [tiab:~5] OR "Pre-operative Conditioning" [tiab:~5] OR "Pre-operative Exercise" [tiab:~5] OR "Pre-operative Exercises" [tiab:~5] OR "Preoperative Exercise"[Mesh] OR "Preoperative Exercise"[tiab:~5] OR "Preoperative Exercises"[tiab:~5] OR "Pre-operative Exercise" [tiab:~5] OR "Pre-operative Exercises" [tiab:~5] OR "Preoperative Rehabilitation" [tiab:~5] OR "Pre-operative Rehabilitation" [tiab:~5] OR "occupational therapy"[tiab] OR "physical therapy" [tiab] OR "physiotherapy" [tiab] OR "Prerehabilitation" [tiab] OR "Pre-Rehabilitation" [tiab] OR ((Rehabilitation[tiab] OR "exercise"[tiab] OR "physical train*" [tiab]) AND (preoperative*[tiab] OR pre-operative*[tiab] OR "pre operative*" [tiab] OR "before surgery" [tiab:~5]))))

AND

("abdominal tumour*" [All Fields] OR "Abdominal Neoplasms"[Mesh] OR "abdominal tumor*" [All Fields] OR "Adenoma"[Mesh] OR "Carcinoma"[Mesh] OR "Sarcoma"[Mesh] OR "solid tumor*" [All Fields] OR "solid tumour*" [All Fields] OR adenoma* [All Fields] OR carcinoma* [All Fields] OR sarcoma* [All Fields])

NOT ("animals"[MeSH Terms] NOT "humans"[MeSH Terms])