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REVIEW ARTICLE

The intersection of cervical cancer treatment and physiotherapy: Current insights and future directions

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Abstract

Cervical cancer remains a significant global health challenge, impacting millions of women annually. While advancements in screening, vaccination, and treatment have improved survival rates, the journey to recovery often entails considerable physical and psychological challenges. Physiotherapy plays a pivotal role in addressing these challenges, offering tailored interventions to enhance functional recovery, alleviate symptoms, and improve overall quality of life for cervical cancer patients. This review article explores the integration of physiotherapy into the comprehensive care of cervical cancer patients, highlighting evidence-based practices and innovative approaches. Key areas of focus include pain management, pelvic floor rehabilitation, lymphedema treatment, and strategies to combat fatigue and deconditioning. The review also examines the role of physiotherapy in mitigating treatment-related side effects, such as radiation-induced fibrosis and surgical complications. Through a multidisciplinary approach, incorporating physiotherapy can facilitate better outcomes, reduce healthcare costs, and support long-term survivorship. By synthesizing current research and clinical practice guidelines, this article aims to provide a comprehensive understanding of the benefits and applications of physiotherapy in the management of cervical cancer, advocating for its inclusion as a standard component of cancer care pathways.

Keywords: Cervical cancer, Rehabilitation, Physical therapy intervention, Future directions.

Introduction

Cancer has been the primary cause of death for about 10 million people in 2020 globally or roughly one in six deaths. About 36 types of cancer in 185 different countries have been recorded. Cervical cancer is the fourth most common cancer in women globally. One woman dies of cervical cancer every 8 minutes in India (Bini *et al*., 2022). Cervical cancer initiates in the cells that line the cervix, the lower portion of the uterus. Precancerous cells typically emerge in the transformation zone, where columnar cells transition to squamous cells in the cervix. Various malignancies, such as squamous carcinoma, adenocarcinoma, mixed types, and others like lymphoma, sarcoma, and melanoma, can develop in the cervix. Squamous cell cancer constitutes 80% of all cervical cancer cases, followed by adenocarcinoma at 20%. The stage of cervical cancer serves as the primary prognostic indicator, influencing the chosen course of treatment and eventual outcomes. Regardless of the type of cervical cancer as adenocarcinoma or squamous cell carcinoma, the treatment options remain the same (Wang *et al*., 2023).

Material and Methods

Literature Search Strategy

A thorough literature search was done to identify studies regarding the role of physiotherapy in cervix cancer rehabilitation. Various electronic databases, including Google Scholar and PubMed, were methodically searched. Combination of relevant keywords such as "physiotherapy," "rehabilitation," "cervix cancer," "cervix carcinoma," "pelvic floor rehabilitation," "lymphedema management," and "exercise therapy." Use of Boolean operators such as "AND" or "OR" to refine searches. Example: (Physiotherapy OR Physical therapy), (Cervical cancer OR Cervical carcinoma), (Rehabilitation OR Survivorship).

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Inclusion and Exclusion Criteria

Inclusion criteria include studies exploring the role of physiotherapy in cervical cancer rehabilitation, including clinical trials, observational studies, and qualitative research. A time frame of the literature search last 10 years to focus on recent evidence. Exclusion criteria include studies not directly related to physiotherapy interventions in cervical cancer rehabilitation. Non-peer-reviewed articles, conference abstracts, and editorials. Publications in languages other than English. Studies with insufficient information on physiotherapy interventions or outcomes.

Study Selection

Initial screening based on titles and abstracts to exclude irrelevant studies. Full-text review of potentially relevant articles to assess eligibility based on inclusion and exclusion criteria.

Data Extraction

Information from the chosen studies was systematically extracted using a standardized data extraction form. The following details were gathered: Title, authors, publication year, study design and methodology. Population details included characteristics of the study population, including age, gender, and medical condition (cervical cancer stage, treatment status).

Physiotherapy intervention

Detailed description of the physiotherapy interventions used in the study. Frequency, duration and intensity of the interventions.

Outcome measures

Physical function and mobility, pelvic floor function, lymphedema assessment, pain assessment, quality of life.

Data Synthesis

Synthesis of existing data on the role of physiotherapy in addressing the physical and psychosocial challenges faced by cervical cancer patients. Insights into the types of physiotherapeutic interventions employed, such as pelvic floor strengthening, lymphedema management, pain management, post-operation rehabilitation, fatigue management, etc., their effectiveness, and the overall impact on the well-being of individuals undergoing cervical cancer treatment.

Quality Assessment

While assessing the quality of physiotherapy interventions in cervical cancer rehabilitation, the following was considered-

Study design

Randomized controlled trials (RCTs) high-quality evidence often comes from well-conducted RCTs with random assignment and appropriate control groups. Prospective cohort studies prospective designs contribute valuable insights, especially when randomization is not feasible.

Participant characteristics

Inclusion criteria are clearly defined and relevant inclusion criteria ensure that the study participants are representative of the target population (cervical cancer patients undergoing rehabilitation). Demographic information and adequate reporting of participant demographics allow for the assessment of the study's external validity.

Intervention details

Clarity and consistency of the physiotherapy intervention should be clearly described, with consistency in its application across participants. Adherence to the protocols studies demonstrating adherence to established treatment protocols enhances the reliability of the results.

Data analysis

This scoping article aims to comprehensively examine and summarize the existing literature on the role of physiotherapy in the rehabilitation of individuals with cervical cancer. The review covers various aspects of physiotherapeutic interventions, including exercise programs, symptom management, and overall quality of life improvement. Rationale for the scoping review- Explanation of the need to explore the role of physiotherapy in cervical cancer rehabilitation.

An overview

Pelvic floor exercise

Strengthening the pelvic floor muscles. Cervical cancer treatments such as surgery and radiation therapy can impact pelvic floor function. Pelvic floor exercises help improve muscle strength, reduce incontinence, and enhance overall pelvic health.

Exercise programs

Addressing fatigue, muscle weakness, and deconditioning. Tailored exercise programs are designed to improve cardiovascular fitness, muscular strength, and flexibility. These programs help survivors regain physical function, manage treatment-related fatigue, and enhance overall quality of life.

Lymphedema management

Prevention and management of lymphedema. Cervical cancer treatment, particularly surgery and radiation, can disrupt the lymphatic system, leading to lymphedema. Physiotherapists employ techniques such as manual lymphatic drainage, compression therapy, and exercise to reduce swelling and improve lymphatic function (Grigsby, 2008; Meneses-Urrea *et al.*, 2023).

Pain management

Pain relief associated with cancer treatment. Physiotherapists use various modalities, including transcutaneous electrical

nerve stimulation (TENS), therapeutic exercises, and manual techniques, to address pain and discomfort arising from surgery, radiation, or other treatments.

Range of motion and flexibility exercises

Maintaining or improving joint mobility and flexibility. Surgery and radiation therapy may lead to stiffness and reduced range of motion in affected areas. Physiotherapists prescribe specific exercises to prevent contractures and improve joint function.

Respiratory exercises

Improving respiratory function. For individuals who have undergone surgery, respiratory exercises help prevent complications such as reduced lung capacity and breathing difficulties.

Psychosocial support

Addressing emotional and psychological well-being. Physiotherapists play a role in providing psychosocial support recognizing the emotional impact of cancer and its treatment. Supportive communication and encouragement during rehabilitation contribute to the overall well-being of the individual.

Patient education

Empowering patients with knowledge. Physiotherapists educate patients about the importance of physical activity, self-management strategies, and lifestyle modifications to promote long-term health and well-being.

Individualized rehabilitation plans

Tailoring interventions to individual needs (Topping *et al*., 2023). Recognizing the diverse effects of cervical cancer and its treatments, physiotherapists develop personalized rehabilitation plans that address the needs of each patient.

Challenges And Limitations

Patient Education and Awareness

Lack of awareness among patients about the potential benefits of physiotherapy in cervical cancer rehabilitation may contribute to underutilization. Patient education and awareness programs may be needed to ensure that individuals are informed about the available rehabilitation options.

Limited Research

The field of cervical cancer rehabilitation, particularly the role of physiotherapy, may be under-researched compared to other cancer types. Limited evidence may hinder the development of evidence-based interventions.

Variability in Rehabilitation Protocols

Physiotherapy interventions can vary widely, and there might be a lack of standardized rehabilitation protocols across studies. This variability can hinder the ability to compare and generalize findings.

Publication Bias

There is a possibility that only studies with positive or significant results are published, leading to publication bias. This can skew the overall understanding of the effectiveness of physiotherapy in cervical cancer rehabilitation if negative or non-significant results are underrepresented.

Long-term Follow-up

Cervical cancer survivors may require long-term rehabilitation and monitoring. Establishing comprehensive, long-term follow-up programs that address evolving needs over time can be challenging within existing healthcare systems.

Late-stage Presentation

Cervical cancer is often diagnosed at advanced stages, leading to more aggressive treatments and greater physical impairments. Late-stage presentation can limit the scope and effectiveness of physiotherapy interventions, as the disease may have already progressed significantly.

Resource Allocation in Healthcare Systems

Limited resources within healthcare systems may impact the availability and accessibility of physiotherapy services. Budget constraints, workforce shortages, and competing healthcare priorities may limit the integration of comprehensive rehabilitation programs.

Future Scope

Focus on prehabilitation emphasis on prehabilitation programs could become more widespread, aiming to enhance the physical and mental preparedness of cervical cancer patients before undergoing treatments. Prehabilitation may help improve treatment tolerance and overall outcomes.

Advancements in Lymphedema Management

Ongoing research in lymphedema management techniques and technologies can further improve outcomes for cervical cancer survivors. Innovative approaches, such as advanced compression therapy and surgical interventions, may complement physiotherapeutic interventions.

Education and Awareness Programs

Future efforts should focus on raising awareness among healthcare providers, patients, and the general public about the benefits of physiotherapy in cervical cancer rehabilitation. Education programs can emphasize the importance of early intervention and the role of physiotherapy in improving quality of life.

Global Standardization of Rehabilitation Guidelines

Collaborative efforts at the international level could lead to the development of standardized rehabilitation guidelines for cervical cancer survivors. These guidelines would help ensure consistency and quality of care across different healthcare settings globally.

Exploration of Regenerative Therapies

Advances in regenerative medicine may open new avenues for rehabilitation by exploring therapies that promote tissue regeneration and functional recovery. This could be particularly relevant for addressing the long-term effects of cancer treatments (Baños *et al.*, 2004; Popiel-Kopaczyk *et al.*, 2023; Tan *et al.*, 2023).

Conclusion

The summary of existing research indicates the importance of physiotherapy in the rehabilitation process for cervical cancer patients, demanding more research, development, and use of these therapies in the wider scope of cancer care. Implementation of standardized protocols and increased awareness among healthcare providers can collectively contribute to optimizing the role of physiotherapy in promoting recovery. Physiotherapy is an important ally in the overall process of recovery and well-being, as we aim to maximize the quality of life for survivors of cervical cancer.

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