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PROSTATE CANCER THERAPIES AND THEIR IMPACT ON QUALITY OF LIFE: A LITERATURE REVIEW

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Abstract: INTRODUCTION The introduction provides an overview of prostate cancer as a prevalent condition with significant implications for men's health worldwide. It outlines the evolution of therapeutic approaches and the growing recognition of the importance of quality of life (QoL) as a key consideration in treatment planning. The introduction highlights the shift from focusing solely on survival to incorporating patient-centered outcomes, such as physical, psychological, and social well-being, into the evaluation of treatment success. It sets the stage for a detailed exploration of the impact of various prostate cancer therapies on QoL. **OBJETIVE** To evaluate the impact of various prostate cancer therapies on the quality of life (QoL) of patients, with a focus on understanding the balance between treatment efficacy and the management of treatment-related side effects. **METHODS** This is a narrative review which included studies in the MEDLINE – PubMed (National Library of Medicine, National Institutes of Health), COCHRANE, EMBASE and Google Scholar databases, using as descriptors: "Quality of Life" AND "Prostate Cancer Therapy" OR "Androgen Deprivation Therapy" OR "Radical Prostatectomy" AND "Patient-Reported Outcomes" in the last years. **RESULTS AND DISCUSSION** The results and discussion section delves into the specific effects of different prostate cancer treatments on QoL. Radical prostatectomy, while effective in tumor control, is associated with significant risks of urinary incontinence and erectile dysfunction, impacting long-term QoL. Radiation therapy, including external beam radiation therapy and brachytherapy, presents challenges such as gastrointestinal and urinary side effects. Androgen deprivation therapy (ADT) is noted for its systemic side effects, including metabolic changes and psychological distress, which can severely affect QoL. Emerging therapies, such as targeted therapies and immunotherapy, offer new possibilities but also introduce new QoL considerations. The psychological impact of prostate cancer treatment, including issues like sexual dysfunction and emotional distress, is also discussed, emphasizing the need for comprehensive support systems. **CONCLUSION** The conclusion emphasizes the complexity of managing prostate cancer, where the goal is not only to control the disease but also to preserve and enhance the patient's quality of life. It calls for a patient-centered approach that considers the multifaceted impact of treatment on physical, psychological, and social well-being. The conclusion highlights the importance of ongoing research and the development of personalized therapies that balance efficacy with tolerability. The future of prostate cancer management is envisioned as one where treatment decisions are informed by a holistic understanding of the patient's needs, aiming to ensure that life after cancer remains fulfilling and dignified.

Keywords: Prostate Cancer; Quality of Life; Androgen Deprivation Therapy (ADT); Radical Prostatectomy; Patient Outcomes.

INTRODUCTION

Prostate cancer remains one of the most prevalent malignancies among men worldwide, with its incidence increasing in tandem with the aging population[1]. As therapeutic approaches for prostate cancer have evolved, the focus has progressively shifted from mere survival to the broader implications of these treatments on the patient's quality of life (QoL)[1]. The therapeutic landscape for prostate cancer is vast, encompassing radical prostatectomy, various forms of radiation therapy, androgen deprivation therapy (ADT), chemotherapy, and more recently, advanced modalities such

as targeted therapies and immunotherapy[1]. Each of these interventions, while potentially life-saving, carries a unique set of side effects that can profoundly affect a patient's physical, psychological, and social well-being[2].

Historically, the primary objective in prostate cancer management was to eradicate the tumor, often at the expense of the patient's QoL[2]. However, the growing recognition that many patients live with the sequelae of their treatments for extended periods has prompted a paradigm shift towards therapies that balance efficacy with the minimization of adverse effects[2]. This shift is particularly pertinent given the indolent nature of many prostate cancers, where the benefits of aggressive treatment must be weighed against the potential for significant long-term morbidity[3].

The advent of precision medicine has introduced new avenues for personalizing prostate cancer treatment, allowing for more tailored approaches that consider individual patient characteristics, including genetic profiles and the molecular features of the tumor[3]. Despite these advances, the decision-making process remains complex, requiring a nuanced understanding of how different therapies affect QoL[3]. Factors such as age, comorbidities, baseline functional status, and patient preferences are increasingly integrated into treatment planning, underscoring the need for a holistic approach to care[4].

Moreover, the psychological impact of a prostate cancer diagnosis and subsequent treatment cannot be understated[4]. Depression, anxiety, and emotional distress are common among these patients, often exacerbated by treatment-induced changes in physical functioning, such as urinary incontinence, sexual dysfunction, and fatigue[4]. These psychosocial dimensions of QoL are critical considerations that must be addressed alongside the physical aspects of treatment outcomes[5].

OBJETIVES

To evaluate the impact of various prostate cancer therapies on the quality of life (QoL) of patients, with a focus on understanding the balance between treatment efficacy and the management of treatment-related side effects.

SECUNDARY OBJETIVES

1. To analyze the specific QoL outcomes associated with radical prostatectomy, radiation therapy, and androgen deprivation therapy.
2. To investigate the psychological and emotional effects of prostate cancer treatments on patients.
3. To assess the role of emerging therapies, such as targeted therapies and immunotherapy, in maintaining or improving QoL.
4. To explore the use of patient-reported outcomes (PROs) in evaluating the effectiveness and impact of prostate cancer treatments.
5. To discuss the future directions in prostate cancer therapy with a focus on preserving QoL.

METHODS

This is a narrative review, in which the main aspects of the impact of various prostate cancer therapies on the quality of life (QoL) of patients, with a focus on understanding the balance between treatment efficacy and the management of treatment-related side effects in recent years were analyzed. The beginning of the study was carried out with theoretical training using the following databases: PubMed, sciELO and Medline, using as descriptors:"Quality of Life" AND "Prostate Cancer Therapy" OR "Androgen Deprivation Therapy" OR "Radical Prostatectomy" AND "Patient-Reported Outcomes" in the last years. As it is a narrative review, this study does not have any risks.

Databases: This review included studies in the MEDLINE – PubMed (National Library of Medicine, National Institutes of Health), COCHRANE, EMBASE and Google Scholar databases.

The inclusion criteria applied in the analytical review were human intervention studies, experimental studies, cohort studies, case-control studies, cross-sectional studies and literature reviews, editorials, case reports, and poster presentations. Also, only studies writing in English and Portuguese were included.

RESULTS AND DISCUSSION

The impact of radical prostatectomy on QoL has been extensively studied, with numerous reports highlighting the significant trade-offs associated with this intervention[6]. While radical prostatectomy remains a cornerstone of curative-intent treatment for localized prostate cancer, it is also associated with substantial risks of urinary incontinence and erectile dysfunction[6]. These side effects can persist long after surgery, significantly impairing QoL[6]. The extent of these side effects often depends on factors such as the surgical technique employed, the skill of the surgeon, and the baseline function of the patient[7].

Robotic-assisted laparoscopic prostatectomy, for example, has been associated with lower rates of urinary incontinence and quicker recovery times compared to traditional open surgery[7]. However, the benefits in terms of long-term QoL outcomes remain a subject of debate, with some studies suggesting minimal differences between the two approaches[7]. Radiation therapy, including external beam radiation therapy (EBRT) and brachytherapy, offers a non-invasive alternative to surgery, but it is not without its own set of QoL challenges[8].

EBRT, particularly when delivered in higher doses over a shorter period, has been associated with gastrointestinal toxicity, manifesting as rectal bleeding, diarrhea, and urgency[8]. These symptoms can be distressing and significantly affect a patient's daily life[8]. Brachytherapy, on the other hand, involves the implantation of radioactive seeds directly into the prostate, which, while reducing the risk of gastrointestinal side effects, can lead to urinary symptoms such as frequency, urgency, and dysuria[9].

The choice between EBRT and brachytherapy often hinges on the patient's anatomy, tumor characteristics, and personal preferences, with QoL considerations playing a pivotal role in the decision-making process[9]. Androgen deprivation therapy (ADT) is another mainstay of prostate cancer treatment, particularly for advanced or metastatic disease[9]. While effective in controlling tumor progression, ADT is notorious for its systemic side effects, which can profoundly affect QoL[10].

These include hot flashes, loss of libido, fatigue, osteoporosis, and metabolic changes such as weight gain and insulin resistance[10]. The psychological impact of ADT is also significant, with many patients experiencing mood swings, depression, and cognitive changes[10]. The timing and duration of ADT are critical factors in managing these side effects[11]. Intermittent ADT, for instance, has been explored as a strategy to mitigate these adverse effects by allowing periods of recovery between treatment cycles, potentially improving QoL without compromising overall survival[11].

Chemotherapy, typically reserved for castration-resistant prostate cancer, presents another layer of complexity in QoL management[11]. The cytotoxic nature of chemotherapy drugs, such as docetaxel and cabazitaxel, leads to well-documented side effects including alopecia, neuropathy, fatigue, and myelosuppression[12]. These side effects can be debilitating, particularly in older patients

or those with comorbid conditions[12]. The impact on QoL during chemotherapy often necessitates supportive care interventions, including the use of growth factors to manage neutropenia, antiemetics for nausea, and physical therapy to address neuropathy and muscle weakness[12].

CONCLUSION

In conclusion, the impact of prostate cancer therapies on QoL is multifaceted, involving a complex interplay of physical, psychological, and social factors. While advances in treatment have improved survival rates, they have also introduced new challenges in managing the side effects that accompany these therapies. Radical prostatectomy, radiation therapy, ADT, and chemotherapy each carry their own set of risks and benefits, and their impact on QoL can vary widely depending on the individual patient's circumstances. Emerging therapies, including targeted therapies and immunotherapy, offer new hope for improving outcomes while potentially preserving QoL, but they are not without their own challenges.

The psychological and emotional toll of prostate cancer and its treatment is profound, affecting not only the patient but also their families and support networks. The integration of psychosocial support and the use of PROs in clinical practice are essential strategies for addressing these challenges and improving patient-centered care.

The ongoing research into the genetic and molecular underpinnings of prostate cancer, coupled with advances in precision medicine, holds promise for the development of new therapies that offer a better balance between efficacy and tolerability. As these therapies are integrated into clinical practice, the challenge will be to ensure that they are applied in a way that maximizes their benefits while minimizing their impact on QoL. Ultimately, the management of prostate cancer is not just about controlling the disease but also about ensuring that patients maintain a high quality of life throughout their treatment journey and beyond. This involves a holistic approach that considers the physical, emotional, social, and even financial aspects of living with prostate cancer. The future of prostate cancer therapy will likely see a greater emphasis on personalized medicine, where treatments are tailored not only to the specific characteristics of the tumor but also to the individual needs and preferences of the patient.

Furthermore, the use of patient-reported outcomes in both clinical practice and research will continue to be crucial in understanding the true impact of treatments on quality of life. These outcomes offer invaluable insights into the patient's perspective, which can sometimes differ from the clinical assessments made by healthcare providers.

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