

## Clinical Approaches in Prostate Cancer Therapies

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Received date: Nov 16, 2018; Accepted date: Dec 07, 2018; Published date: Dec 10, 2018

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### Abstract

Prostate cancer is the most frequent tumor found in men worldwide and in Brazil and represents their second-leading cause of cancer-related death. Metastatic disease is largely resistant to conventional chemotherapies, and targeted therapies are urgently needed. The PSA (Prostate-Specific Antigen) blood test has been used in various stages of prostate cancer management, including screening and the assessment of future risk of prostate cancer development, detection of recurrent disease after local therapy and in the management of advanced disease. Prostate-Specific Membrane Antigen (PSMA) is a prototypical cell-surface marker of prostate cancer. PSMA is expressed in the neo-vascular of other solid tumours.

This work aims to reach the publications of therapies utilized to treat prostatic cancer, mainly the physiotherapy, used to facilitate the life of patients with this disease. PubMed and World-Wide Science databases were used to screening about prostatic cancer therapies and biomarkers. The results showed that cryo-therapy and pelvic floor exercises were useful by physiotherapy to treat prostatic cancer. Chemotherapy showed to be the better treatment for this type of cancer. Though PSMA is a biomarker used in researches in the last 20 years, the PSA levels is still the best biomarker dosed in our days.

**Keywords:** Prostate cancer; Chemotherapy; Physiotherapy; Quality of life; Biomarker

### Introduction

Prostate cancer is the most frequent tumor found in men worldwide and in Brazil and represents their second-leading cause of cancer-related death [1].

Metastatic disease is largely resistant to conventional chemotherapy, and targeted therapies are urgently needed [2].

The PSA blood test has been used in various stages of prostate cancer management, including screening and the assessment of future risk of prostate cancer development, detection of recurrent disease after local therapy and in the management of advanced disease [3].

However, PSA-based decision-making in prostate cancer has significant shortcomings. Prostate-Specific Membrane Antigen (PSMA) is a prototypical cell-surface marker of prostate cancer [4]. Prostate-specific membrane antigen (PSMA) is a type 2 integral membrane glycoprotein that serves as an attractive target for cancer immunotherapy by virtue of its abundant and restricted expression on the surface of prostate carcinomas and the neo-vasculature of most other solid tumors [5]. In addition, PSMA is expressed in the neo-vascular of other solid tumours [6].

At best, screening for prostate cancer leads to a small reduction in disease-specific mortality over 10 years, but does not affect overall mortality. Clinicians and patients considering PSA based screening need to weigh these benefits against the potential short- and long-term harms of screening, including complications from biopsies and

subsequent treatment, as well as the risk of over diagnosis and overtreatment [7].

Concerning to the prostatic cancer, physiotherapeutic procedures are also relevant in the treatment, in the prevention of diseases or complications and in the management or treatment of undesirable pathological conditions to thus abolish or minimize the impact that these may have in the quality of life of the patient. In general, physiotherapy management in the area of oncology has relevant contributions to patient care. Furthermore, they demonstrate how the disciplines allied to medicine are working together to bring the healthy individual back to normal life and re-integration to the society or improve the quality of life of patients that have to live with cancer as a chronic disorder and those that are in the terminal stages of the disease and life [8].

This work aims to reach the publications of therapies utilized to treat prostatic cancer, mainly the physiotherapy, used to facilitate the life of patients with this disease.

### Methodology

We searched PubMed ([ncbi.nlm.nih.gov/pubmed](http://ncbi.nlm.nih.gov/pubmed)) and Word Wide Science (WWS) ([worldwidescience.org](http://worldwidescience.org)) with the terms: “prostatic cancer”, “prostatic cancer and therapy” and “prostatic cancer and physiotherapy” to obtain the articles published showed in these databases in the last 5 years of publications using the select inclusions: clinical trial, free full text and research to do only in humans. Before this, the terms representing physiotherapeutic resources were searched in the same databases using “prostatic cancer and each resource”. We used the following terms: cryo-therapy, aerobic exercises, and pelvic floor exercise. It also used to research “prostatic cancer and PSA”,

prostatic cancer and PMSA”, “prostatic cancer and chemotherapy. All search terms were divided by the results obtained for prostatic cancer to determinate the percentage of publications in each term.

## Results

There were 709 publications for prostatic cancer, 581 publications for prostatic cancer and therapy and 27 publications for prostatic cancer and physiotherapy in PubMed database. The research found 1271 publications for prostatic cancer, 173 publications for prostatic cancer and therapy, and 391 publications for prostatic cancer and physiotherapy in Word Wide Science database. The difference between both databases sites is due to the mechanisms of research. All it found to the physiotherapies is showed in the Table 1.

Physiotherapy	PubMed - %	W.W.S. - %
Cryotherapy	511 – 72.07	020 – 01.57
Aerobic exercise	044 – 06.21	156 – 12.27
Pelvic floor exercise	048 – 06.77	324 – 25.49
All results were divided by the total obtained in database utilized.		

**Table 1:** Results in prostatic cancer and physiotherapy.

The results found to the principal therapies but not physiotherapies are showed in the Table 2.

Therapy	PubMed	% publication	WWS	% publication
Radiotherapy	154	21.72	146	11.49
Pharmacological	42	05.92	38	02.99
Nonpharmacological	0	0	62	04.88
Androgen-deprivation	102	14.39	27	02.12
Chemotherapy	316	44.57	265	20.85
All results were divided by the total obtained in database utilized.				

**Table 2:** Results in prostatic cancer related to different therapies but not physiotherapies.

Table 3 shows the comparison of the results found about the determination of prostatic cancer antigens in both databases used in this work.

Antigens	PubMed	% publication	WWS	% publication
PSA	226	31.88	271	21.32
PMSA	0	0	156	12.27
Other	297	41.89	12	00.94
All results were divided by the total obtained in database utilized.				

**Table 3:** Results obtained in databases about the determination of prostatic cancer antigens.

## Discussion

The difference obtained in the results is because of the World Wide Science was developed and maintained by the Office of Scientific and Technical Information (OSTI), an element of the Office of Science within the U.S. Department of Energy while, PubMed comprises more than 28 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

The physiotherapy that is used to treat the complications caused by prostatic cancer, the cryo-therapy was found to be the dominant strategy over a wide range of cost-effectiveness thresholds, but not always due to physiotherapy, and the androgen-deprivation therapy is commonly the therapy used before radiotherapy of prostatic cancer [9]

Other than surgery, radiotherapy, endocrine therapy, and immunotherapy, chemotherapy is the main treatment for cancer. However, multidrug-resistant mechanisms ensure that several cancer cells can resist and escape chemotherapy [2]. The research appoints the chemotherapy have more publications (44.57%) than other therapies. Twenty years from its discovery, PSMA represents a viable biomarker and treatment target in prostate cancer [4]. According to the PubMed and the WWS the biomarker more utilized still the PSA. Several professional bodies now recommend against population-based PSA screening. This is not a stance against early detection of prostate cancer but rather a reaction to decades of over detection and overtreatment of clinically unimportant prostate cancers and the underwhelming impact on mortality. Thus far, PSA screening has failed to achieve the public health requirement of causing better than harm. The practice of widespread testing and treating has come at a significant personal and financial cost and has caused the recent backlash against population screening. The development is more rational approach to prostate cancer screening and selection of men for closer monitoring or diagnostic biopsy [3]. Other biomarker was used in research were found in the PubMed but less in World Wide Science.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor’s medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be dangerous [10]. These approaches are not likely to be a good option if you have a fast-growing cancer or if the cancer is likely to have spread outside the prostate (based on PSA levels). Men who are young and healthy are less likely to be offered active surveillance, out of concern that the cancer might become a problem over the next 20 or 30 years.

## Conclusion

The results showed that cryo-therapy and pelvic floor exercises were useful by physiotherapy to treat prostatic cancer. While chemotherapy showed to be the better treatment for this type of cancer. Though PSMA is a biomarker used in researches in the last 20 years, the PSA levels is still the best biomarker dosed in our days.

## Acknowledgments

The author thanks to UNINASSAU to support this research.

## Conflict of Interest

The author declares there is no conflict of interest of any kind about this work.

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