

Prostate Cancer and Low Back Ache—Evidenced Role of Physiotherapy

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How to cite this paper: Subramanian, S.S. (2022) Prostate Cancer and Low Back Ache—Evidenced Role of Physiotherapy. *Case Reports in Clinical Medicine*, 11, 94-100. <https://doi.org/10.4236/crcm.2022.113015>

Received: February 7, 2022

Accepted: March 26, 2022

Published: March 29, 2022

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Abstract

Low back pain remains a most common clinical entity among musculoskeletal disorders. Pain reducing modalities, Manual therapy various specific techniques were widely used physiotherapeutic means as part of treatment for subjects with low back pain. An emerging trend with Independent physiotherapy practice, knowing red flags, conditions requiring investigations and experts treatment were to be recognized and adhered for maximizing patients care and benefits. Prostate cancer among men above 50 years were more found to be linked with Low back pain. This original research presentation where a subject having chronic low back pain found to have prostate cancer were analyzed and discussed with scientific evidence on clinical manifestations, investigations and medical management. Underlines the importance of recognizing, directing and getting treated of the root cause of subjects suffering with Low back pain due to prostate cancer and not just keep treating the symptoms alone were major purpose of this study.

Keywords

PC—Prostate Cancer, QOL—Quality of Life, LBA—Low Back Ache, PA—Physical Activity, PSA—Prostate Specific Antigen, CAD—Coronary Artery Disease, DRE—Digital Rectal Examination, WHO—World Health Organization

1. Introduction

Prostate Cancer (PC) is the most common non-cutaneous cancer in men and second leading cause of cancer related mortality in men [1]. Cao and Ma 2011 [2], conducted a meta-analysis of 26 studies found 12% - 20% of deaths from PC are related to obesity, where every 5 Kg/m², there was a concomitant increase in biochemical recurrence by 21% and the risk of death from PC increases by 15%.

Scher *et al.*, 2016 [3] in a survey among 109 men, 25% had family history of

prostate cancer, 26% had an elevated Prostate specific antigen (PSA), 22% were prostate cancer survivors, 94% were white, non-Hispanic, 84% were married, 81% were urban had a mean Body mass index (BMI) of 29.5 Kg/m² (80% were obese), 29% vigorous Physical activity (PA), 52% moderate, 18% sedentary, Diet 26% meat daily, 64% dairy daily [4].

Physiotherapist, recognized as first contact health care expert for musculoskeletal disorders by World health organisation (WHO), a big boon for physio practice globally. At the same time, an updated clinical knowledge of various conditions associated with age related clinical situations, investigations needed, physical examinations, medical history related issues, lifestyle changes, when to refer to medical experts with due clinical reasoning skills are paramount.

Low back pain, most common condition to be treated by physiotherapist, where not to treat the symptom alone; but physiotherapist should have analytical ability to find relative pathological origin. In an era of patient centered therapy, advanced communication technology based information prompt diagnosis and reference remains key components. Many associated clinical conditions such as tuberculosis of spine, prostate cancer should be treated medically prior to physiotherapy. Hence with a middle aged man complaining of low back ache with obesity, sedentary lifestyle, alcoholism, urinary disturbances should be initially referred for PSA screening and Digital rectal examination (DRE).

Various risk factors, investigations, clinical course, treatment and complications of prostate cancer were discussed with evidence. Role of physiotherapy with critical analysis on a patient with LBA and prostate cancer were provided. Importance of being first contact health expert a thorough knowledge of various clinical conditions related to musculoskeletal disorders mainly low back ache are highlighted.

1.1. Low Back Pain and Prostate Cancer

Among younger patients, the PC is usually very aggressive and requires treatment [5], with one of the late manifestations is bone pain by way of skeletal metastasis [6] may present with low back pain, thus knowledge of middle aged man with low back, sacro iliac and hip pain should be referred for medical management [7]. A patient with metastatic disease may complain of night pain, intense pain at rest with unexplained weight loss [8]. Patients with Prostate cancer (PC) may have decreased urine stream, increased frequency and urgency [5]. Johnson 1994 [9] had a patient with one month abdominal and back pain has referred to physical and laboratory examination, later was diagnosed and treated for PC.

1.2. Investigations

Routine screening of PC includes PSA and DRE at the age of 50 years [10], men at higher risk for PC should screen for PC at 40 years [11].

1.3. Management of Prostate Cancer

Metz *et al.* 2016 [12], have recorded men after PC diagnosis wanted to improve

their health with diet, Le masters *et al.* 2014 [13] have insisted on lifestyle changes as less likely to occur as more time passes after any cancer diagnosis. Physical activity appeals to mean as effective weight management strategy [9] and PC as it is empowering [14]. Compared with female cancer survivors male cancer survivors are 30% more likely to meet American cancer society's recommendations at 150 moderate to vigorous PA per week [15].

1.4. Complications

While data of PA on PC are not conclusive [16] men with PC are more likely to die of CVD [17]. Advanced PC commonly spreads to the bones which cause pain in the hips, spine, ribs and impotence was considered to be an important and early marker for PC [18]. Ketch and Ji *et al.* 2018 [19] have recorded that 2/3rd of early stage of PC death from Cardio vascular diseases (CVD) was more common than from PC. 65% to 80% of men with metastatic disease have bone metastasis and is common with PC with skeletal related events cause pain and Quality of life (QOL). Prostate gland is divided into different zones, peripheral zone is the most common site of malignancy and is palpable [20].

2. Aims and Objectives of This Research Were

- 1) To evaluate low back pain among prostate cancer.
- 2) To be familiar with prevalence, prognosis, treatment and complications of prostate cancer.
- 3) To analyse the role of physiotherapy among patients with prostate cancer.

Preview and Purpose of Presentation:

55 year old endomorph male with sedentary lifestyle with chronic low back pain for more than a year. He was treated by orthopaedic surgeon with Non-steroidal anti-inflammatory drug (NSAID), Short wave diathermy (SWD), Light amplification stimulation with emission & radiation (LASER) therapy and exercises during this period (June 2018-December 2018). He was diagnosed with prostate cancer later and was treated with due medication has recovered clinically and with laboratory reports in 3 months period (July 2019-September 2019).

Other Related Findings of the Subject:

Body Mass Index—32 Kg/m², Waist Circumference (WC)—115 cm, Vegetarian, was an alcoholic till last year, Non-smoker, with long hours of sitting for more than 10 hours daily. Father of two adult, was regular with walking for 45 minutes of 5 days per week.

History of father with Coronary artery disease (CAD), Stroke twice, mother with Parkinsons, CAD, diabetic, both parents are endomorph.

3. Results & Discussion

The results and clinical prognosis of the subjects condition prior to prostate cancer with LBA is shown in **Table 1** below.

Table 1. Results and clinical prognosis of the subjects condition prior to prostate cancer with LBA.

PARAMETERS	PRE	POST	SE	Tests of Significance	P-Value
BMI	38 kg/m ²	32 kg/m ²	0.71	8.45	>0.01
Waist Circumference	130 cm	115 cm	2.23	6.73	>0.01
Oswestry Disability Score	76	48	6.48	4.32	>0.05
Incentive Spirometry	2400 cc	3600 cc		-	

Critical Research Analysis

- 1) Is there a need for physiotherapists to know about prostate cancer
- 2) What is the role of physiotherapist among prostate cancer subjects and
- 3) How outcome of this research will be helpful for physiotherapists?

Knowing physiotherapy, developing advanced skills are good equally learned on clinical conditions such as obesity, lifestyle related diseases, habits, influence of gender, age, genetic influence, family history, behaviour and nature of pain should be gathered and their relevant clinical implications are to be considered prior to specific physiotherapy evaluations.

As shown in Introduction, Review of Literature prostate cancer is related to obesity, family history, urinary disturbances, low back pain, and pain in the night, radicular symptoms to abdomen, sedentary lifestyle, consumption of alcohol, dairy habits, and male above 40 years. Screening the prostate specific antigen and digital rectal examination are highly recommended above 40 years especially by American Cancer Society. As low back pain manifest among prostate cancer subject, may be due to skeletal metastasis, with known rapid progression.

Being a common clinical condition physiotherapists treat, not only to be familiar with prostate cancer, directing or referring a subject with these history, symptom can rise standard of physio practice and maximise patient care. Practice of manual therapy, short wave diathermy, ultrasound therapy, resisted exercises with undiagnosed prostate cancer subjects with low back pain can prove catastrophically. Hence this critical research upholds higher physio standard.

Among prostate cancer subjects medically treated with chemotherapy, with care as decreased bone mineral density, lower vitamin D3, as part of low back ache due to skeletal metastasis, mechanical low back due to obesity.

4. Key Findings

Heaviness, Stiff joints, Painful low back, low VD3, obesity, physical inactivity, previous history of alcoholism, sedentary lifestyle, both parents having CAD are predisposing and risk factors for PC. Clinical findings with excessive sweating, moderate exercise tolerance, Polyarthralgia with pain radiating to groin, adductor tightness, bilateral hamstring tightness, above all hard, solid, rocky on palpation of spinal muscles with partial relief with every session of exercise as subjective reporting by the patient.

If low back pain continues with radicular symptoms for more than 3 months physiotherapist should refer for physician or to screening for other causes including prostate cancer, ankylosing spondylitis, VD3, osteoporosis, kidney stone, tuberculosis of hip or spine. Deep heat modalities such as Short wave diathermy, Manual therapy should be judiciously applied on these subjects.

Severe forms of resisted exercises again a physiotherapist should wisely use his clinical knowledge, with following guideline can be adhered:

- 1) Stretching and Strengthening exercises should be careful with low load.
- 2) Deep heat modalities to be cautiously used.
- 3) Weight reduction exercises
- 4) Aerobic exercises, Lifestyle modification.
- 5) Physical exercises among prostate cancer subjects are not evidenced.
- 6) Depends on the level of staging in cancer, exercise tolerance to be gradually increased. As fatigue among these subjects are high.
- 7) Resisted exercises needs to be planned carefully.
- 8) Gym related activities should be monitored.
- 9) Manual therapy should adhere to basic guidelines and avoid high thrust techniques.
- 10) Core Strengthening can be useful for waist reduction, mobilising joints as well strengthening means of lower back, lumbo pelvic region.
- 11) Incentive Spirometry can be used to improve vital capacity.

As non-availability of Randomised controlled trial (RCT) on the role of physiotherapy among prostate cancer were available findings of this research subject with prostate cancer gets more significant.

5. Executive Summary

Low back pain, a common clinical condition, physiotherapists are involved. Middle aged subject, complaining of Low back ache (LBA), Sacroiliac pain should be asked for screening of PSA and Digital Rectal examination. Family History of prostate cancer, obesity, lifestyle, changes in urine frequency to be recorded and to be investigated and treated by physician/urologist prior to physiotherapy. As prostate cancer, an aggressive in nature low back ache not responding to physiotherapy exercises in few sessions other probable causes should be considered. Deep heat modalities such as short wave diathermy, ultrasound therapy should be judiciously used among young middle aged subjects with undiagnosed pathology in mind. Role of physiotherapy among PC not evidenced but weight reduction exercises, stretching, lifestyle modification are productive. Knowledge of risk factors for PC, Investigations, clinical prognosis, and physiotherapists should be more familiar.

6. Conclusions

When treating low back ache subjects, if pain persists, or inadequate positive results are seen clinically and by functional means, physiotherapist should use their

clinical reasoning skills, discuss with senior therapists, refer from evidences for obvious other causes of low back ache than musculoskeletal. Thereby developing an attitude of scientific practice by referring to concerned medical professional as part of integrated healthcare of patients were not researched here.

Further studies involving larger sample size, more physiotherapy variables and a control group are recommended.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] Siegel, R.L., Miller, K.D. and Jemal, A. (2015) Cancer Statistics, 2015. *CA: A Cancer Journal for Clinicians*, **65**, 5-29. <https://doi.org/10.3322/caac.21254>
- [2] Cao, Y. and Ma, J. (2011) Body Mass Index, Prostate Cancer-Specific Mortality, and Biochemical Recurrence: A Systematic Review and Meta-Analysis. *Cancer Prevention Research*, **4**, 486-501. <https://doi.org/10.1158/1940-6207.CAPR-10-0229>
- [3] Scher, H.I., Morris, M.J., Stadler, W.M., Higano, C., Basch, E., Fizazi, K., *et al.* (2016) Trial Design and Objectives for Castration-Resistant Prostate Cancer: Updated Recommendations from the Prostate Cancer Clinical Trials Working Group 3. *Journal of Clinical Oncology*, **34**, 1402-1418. <https://doi.org/10.1200/JCO.2015.64.2702>
- [4] Thompson, I.M., Pauler, D.K., Goodman, P.J., Tangen, C.M., Lucia, M.S., Parnes, H.L., *et al.* (2004) Prevalence of Prostate Cancer among Men with a Prostate-Specific Antigen Level ≤ 4.0 ng per Milliliter. *New England Journal of Medicine*, **350**, 2239-2246. <https://doi.org/10.1056/NEJMoa031918>
- [5] Markowitz, A.J. and Winawer, S.J. (1997) Screening and Surveillance for Colorectal Carcinoma. *Hematology/Oncology Clinics of North America*, **11**, 579-810. [https://doi.org/10.1016/S0889-8588\(05\)70452-4](https://doi.org/10.1016/S0889-8588(05)70452-4)
- [6] Yochum, T.R. and Rowe, L.J. (1987) *Essentials of Skeletal Radiology*. Williams and Wilkins, Baltimore.
- [7] Lishchyna, N. and Henderson, S. (2004) Acute Onset-Low Back Pain and Hip Pain Secondary to Metastatic Prostate Cancer: A Case Report. *The Journal of the Canadian Chiropractic Association*, **48**, 5-12.
- [8] LaFrance, L.J., Cassidy, J.D., Nykolation, J.W. and Mierau, D.R. (1987) Back Pain and Spinal Metastases: A Case Study. *Journal of the Canadian Chiropractic Association*, **31**, 69-72.
- [9] Johnson, T.L. (1994) Diagnosis of Low Back Pain, Secondary to Prostate Metastasis to the Lumbar Spine, by Digital Rectal Examination and Serum Prostate-Specific Antigen. *Journal of Materials Processing Technology*, **17**, 107-112.
- [10] Lim, L.S., Sherin, K. and ACPM Prevention Practice Committee (2008) Screening for Prostate Cancer in US Men: ACPM Position Statement on Preventive Practice. *American Journal of Preventive Medicine*, **34**, 164-170. <https://doi.org/10.1016/j.amepre.2007.10.003>
- [11] Smith, M.R., Lee, H., McGovern, F., Fallon, M.A., Goode, M., Zietman, A.L. and Finkelstein, J.S. (2008) Metabolic Changes during Gonadotropin-Releasing Hormone agonist Therapy for Prostate Cancer: Differences from the Classic Metabolic

- Syndrome. *Cancer*, **112**, 2188-2194. <https://doi.org/10.1002/cncr.23440>
- [12] Metz, C.M. (2016) Bisphenol A: Understanding the Controversy. *Workplace Health & Safety*, **64**, 28-36. <https://doi.org/10.1177/2165079915623790>
- [13] LeMasters, T.J., Madhavan, S.S., Sambamoorthi, U. and Kurian, S. (2014) Health Behaviors among Breast, Prostate, and Colorectal Cancer Survivors: A US Population-Based Case-Control Study, with Comparisons by Cancer Type and Gender. *Journal of Cancer Survivorship*, **8**, 336-348. <https://doi.org/10.1007/s11764-014-0347-5>
- [14] Warrington, R.J. and Lewis, K.E. (2011) Natural Antibodies against Nerve Growth Factor Inhibit *in Vitro* Prostate Cancer Cell Metastasis. *Cancer Immunology, Immunotherapy*, **60**, 187-195. <https://doi.org/10.1007/s00262-010-0934-x>
- [15] Jackson, W., Hamstra, D.A., Johnson, S., Zhou, J., Foster, B., Foster, C., *et al.* (2013) Gleason Pattern 5 Is the Strongest Pathologic Predictor of Recurrence, Metastasis, and Prostate Cancer-Specific Death in Patients Receiving Salvage Radiation Therapy Following Radical Prostatectomy. *Cancer*, **119**, 3287-3294. <https://doi.org/10.1002/cncr.28215>
- [16] Young, A., Palanisamy, N., Siddiqui, J., Wood, D.P., Wei, J.T., Chinnaiyan, A.M., *et al.* (2012) Correlation of Urine TMPRSS2: ERG and PCA3 to ERG+ and Total Prostate Cancer Burden. *American Journal of Clinical Pathology*, **138**, 685-696. <https://doi.org/10.1309/AJCPU7PPWUPYG8OH>
- [17] Epstein, J.I., Feng, Z., Trock, B.J. and Pierorazio, P.M. (2012) Upgrading and Downgrading of Prostate Cancer from Biopsy to Radical Prostatectomy: Incidence and Predictive Factors Using the Modified Gleason Grading System and Factoring in Tertiary Grades. *European Urology*, **61**, 1019-1024. <https://doi.org/10.1016/j.eururo.2012.01.050>
- [18] Hamilton, W., Sharp, D.J., Peters, T.J. and Round, A.P. (2006) Clinical Features of Prostate Cancer before Diagnosis: A Population-Based, Case-Control Study. *British Journal of General Practice*, **56**, 756-762.
- [19] Ji, S., Lee, M. and Kim, D. (2018) Detection of Early Stage Prostate Cancer by Using a Simple Carbon Nanotube@ Paper Biosensor. *Biosensors and Bioelectronics*, **102**, 345-350. <https://doi.org/10.1016/j.bios.2017.11.035>
- [20] LaSpina, M. and Haas, G.P. (2008) Update on the Diagnosis and Management of Prostate Cancer. *Canadian Journal of Urology*, **15**, 3-13.