

The effect of androgen deprivation therapy on the quantitative assessment of quality of life in New Zealand prostate cancer survivors

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Received Date: December 29 2021

Accepted Date: December 31 2021

Published Date: January 27 2022

Abstract

Men with glandular cancer experience several challenges to their quality of life (QOL). Whereas a number of these challenges mirror the direct effects of the cancer, further side-effects and symptoms are related to common treatments particularly steroid deprivation medical care (ADT). Whereas many studies have examined the consequences of ADT on the QOL of men with glandular cancer, a lot of this analysis is between 10-20 years previous and was conducted in North America or Europe. This study thus examined the consequences of ADT on QOL in glandular cancer patients (survivors) within the hemisphere. The registries of 2 New Zealand based mostly hospitals were sourced to spot men with glandular cancer WHO were victimisation ADT for a minimum of six months (ADT cluster, n=205) and people WHO had ne'er used ADT (non-ADT cluster, n=143). Participants in each team were mail-clad a letter of invite, the WHOQOL-BREF and 3 aspects of the WHOQOL-OLD QOL form. Response rates of forty first and four-hundredth were obtained for the ADT and non-ADT teams, severally. QOL scores were usually similar between the teams, with the exception of physical QOL, that was considerably lower within the ADT cluster. Such results recommend that cancer clinicians, allied health professionals and cancer researchers shouldn't simply consider the physical impact of ADT on their survivors' risk of developing pathology, falls-related fracture and cardio-metabolic syndrome, however conjointly devote time to make sure their survivors' perception of their physical QOL isn't compromised.

Keywords

cancer survivorship; cancer therapy; hormonal therapy; quality of life; prostate cancer

Introduction

Prostate cancer is that the most common kind of cancer for men in several countries together with New Zealand and Australia [1, 2]. As a results of high five year survival rates of half of one million [2], 53,296 men area unit still alive five years post adenocarcinoma diagnosing in Australia. The high five year survival rates could mirror some combination of enhancements in early detection and treatment modalities together with surgical techniques, radiotherapy, therapy and ADT [3].

Of these treatments, ADT is maybe the foremost ordinarily prescribed, with ~50% of adenocarcinoma survivors seemingly to use ADT throughout their treatment [4, 5]. ADT reduces the and symptoms. Such effects embrace vital changes in body composition (increased fat mass and reduced muscle and bone mass), reduced muscular strength, endurance, useful performance in activities of daily living and sexual operate still as exaggerated levels of fatigue and rates of different chronic conditions together with pathology, falls-related fracture and metabolic syndrome [6, 8], whereas men on ADT expertise bigger co-morbidity than their non-ADT peers, it's not utterly clear however these ADT-related side-effects and symptoms have an effect on their QOL, with many studies reportage comparatively few vital variations in QOL between ADT and non-ADT adenocarcinoma survivors [9-11].

The relative lack of serious QOL variations, whereas maybe a surprise thanks to the side-effects and symptoms related to ADT could mirror many factors. the primary is that the literature includes studies that have compared adenocarcinoma survivors victimization ADT to adenocarcinoma survivors undergoing radiotherapy and radical excision [9] or active police work [9-12]. As ADT, radiotherapy and radical excision all have renowned side-effects and symptoms [7, 13], an absence of the many vital variations within the QOL of men victimization these therapies is of very little surprise. Secondly, all of those studies were conducted in North America or Europe, with the North America studies involving knowledge from 1994 and 1995 [9, 10]. As ADT treatment protocols have modified significantly since that point and will conjointly dissent across countries [14, 16], newer studies in different non-North yankee and European countries is also required to raised quantify the modern impact of ADT on QOL in men with adenocarcinoma. Another issue with these studies could concern the QOL tools used, with the studies typically victimization the SF-36 [9-11] though one study used the EORTC-C30 and sexual behaviour questionnaires (SBQ) [12]. whereas all of those QOL tools have adequate psychological science properties, the WHOQOL tools [17] have the intercalary advantage of providing wonderful society validity thanks to the means within which they were developed [18]. Scores on the WHOQOL tools, particularly those concerning physical and psychological QOL, area unit typically found to be moderately related with connected parts of the SF-36 [19], though the SF-36 seems to be way more seemingly to yield floor and ceiling effects [20]. The WHOQOL conjointly captures a awfully wide selection of relevant QOL problems, like social and environmental QOL, so extending QOL assessment on the far side factors that area unit restricted solely to direct issues concerning sickness and symptoms [19]. The subjective components that area unit assessed by the WHOQOL tools distinguish them from a lot of objective instruments, like the SF-36. This means, as an example, that the WHOQOL is in a position to differentiate between 2 adenocarcinoma survivors United Nations agency could expertise similar side-effects and symptoms, however United Nations agency could have terribly totally different perceptions on however these impairments have an effect on their QOL [18].

Therefore, the aim of this study was to use a cross-sectional style to look at the results of current ADT usage on glandular cancer survivors' QOL as assessed by the WHOQOL. supported the glandular cancer QOL literature and therefore the direct effects of ADT, it absolutely was hypothesised that the ADT cluster would exhibit reduced QOL across some domains, with the foremost probably distinction being for physical QOL.

Methods

Design

This study was a cross-sectional comparison of the QOL of glandular cancer survivors presently on ADT for a minimum of six months and people United Nations agency haven't been on ADT. All people United Nations agency met these inclusions criteria were armoured a letter of invite, with no people with bone metastasis excluded. The inclusion of men with metastases was done as national written account information suggests that fifty of men on ADT square measure diagnosed with pathologic process cancer among eighteen months of beginning ADT [21] and 12-tone system of all glandular cancer survivors can have pathologic process sickness by two years post-diagnosis [22]. The results rumored here compares the new information for glandular cancer survivors not victimization ADT (non-ADT group) to antecedently revealed information for those victimization ADT (ADT group) [23]. an equivalent information assortment procedures were used for the non-ADT cluster and therefore the antecedently revealed ADT cluster [23]. each elements of this study had approval from the port Regional Ethics Review Board (formerly called Northern Y Ethics Committee).

Participants and procedures

Non-ADT group: victimization the info of the North Shore Hospital in New island, all glandular cancer survivors United Nations agency weren't presently, and haven't been, on ADT were sent a letter invitatory them to participate within the gift study. Of the 143 survivors United Nations agency were known and sent asking letter, fifty seven in agreement to participate and came back a form, yielding a response rate of four-hundredth. The initial letter of invite enclosed a canopy letter that explained the study and the way they may participate. One week later, associateother letter was sent together with an info sheet, the WHOQOL-BREF and WHOQOL-OLD questionnaires and a sealed return-addressed envelope. In an effort to enhance the response rates [24], another letter package together with the WHOQOL-BREF and WHOQOL-OLD was sent 2-4 weeks later thanking those that had responded and inspiring those that had not came back the questionnaires to try and do therefore. The mean age of this cluster was sixty seven.9 years (SD=8.7).

ADT Group: Of the 205 survivors United Nations agency were known as being on ADT for extended than six months and sent asking letter to participate within the study, eighty four men came back the form, leading to a response rate of forty first [23]. This cluster had a mean age of seventy eight.4 years (SD=8.2).

Measures

WHOQOL-BREF: The WHOQOL-BREF is that the transient version of the globe Health Organisation's QOL instrument, with things contributory to a score on the subsequent QOL domains: physical (7 items), psychological (6 items), social (3 items), and environmental (8 items). The WHOQOL-BREF has been valid to be used in older adults [25] and for the New island population [26].

WHOQOL-OLD: The WHOQOL-OLD is associate elective add-on module to alternative WHOQOL measures to assess sides of QOL that square measure pertinent to older adults [27]. the first scale contains six sides of 4 things every. However, to attenuate response burden, solely things that were judged by the researchers as being most relevant were enclosed. These were 3 of the six WHOQOL-OLD sides, specifically autonomy, social participation, and death and dying. solely 3 of the four things of the side death and dying were utilized in this study to minimise participant burden. before applied mathematics analyses, these

things were reverse coded so a better score delineate elevated QOL, per the opposite sides.

Statistical analyses

All information analyses were conducted exploitation the program Statistics Package for the Social Sciences (SPSS) v.19. In total, 0.01 of all responses were missing. Given the sample size, missing things on the WHOQOL-BREF were imputed by the mean score on the opposite things that the participant rated on an equivalent domain. to keep up the ordinal structure of the size, imputed scores were rounded. Missing things weren't imputed once over 1/2 the things on the sub-scale were missing, during which case no sub-scale score was calculated for that respondent.

Differences between the ADT and non-ADT teams in terms of the WHOQOL-BREF domains and also the 3 WHOQOL-OLD sides were tested employing a MANCOVA, dominant for age and time since diagnosing. a major distinction in one in every of the domains was then followed up by an extra Associate in Nursing analysis that enclosed an ageand gender matched general population sample collected one year earlier [26]. This reference cluster was any divided into participants UN agency self-identified as unwell and well, so yielding a complete of 4 teams to be compared (non-ADT, ADT, general population Well, and general population Unwell). as a result of no WHOQOL-OLD scores were offered for the Unwell and Well teams, and there was no variable time since diagnosing for these teams, this comparison was created exploitation Associate in Nursing ANCOVA, dominant for age, and followed up with post-hoc tests. to attenuate inflation of Type-1 error, the ANCOVA was solely conducted to explore variations within the WHOQOL-BREF domain that yielded a major distinction within the on top of MANCOVA. The mean ages of the Well and Unwell teams were sixty five.2 years (SD=9.6) and 70.2 years (SD=10.1), severally. The minimum age was fifty one years for the Well, Unwell, and non-ADT teams, and fifty eight years for the ADT cluster.

Results

A description of the 2 cancer samples is given in Table 1. each teams were similar in quality and time since diagnosing, though the ADT cluster were considerably older and had a better prostate specific substance (PSA) level.

Discussion

Due to the terribly high five year survival rates for variety of cancers as well as that of the prostate [2], a bigger quantity of analysis is currently specializing in the broader problems with cancer survivorship rather than simply howto scale back mortality rates. a significant focus of this survivorship analysis is bothered with gaining Associate in Nursing insight into the impact of long usage of common treatments on numerous aspects of QOL and the way ancient and complementary therapies could offset these treatment-related problems. This study extends a number of the literature during this space because the mean length of ADT usage during this study of ~4 years was well bigger than the durations of zero.5-2 years ADT cited antecedently.

The main findings of this study were that the ADT and non-ADT teams had terribly similar QOL. Of the four WHOQOL-BREF domains (Psychological, Social and Environmental) and 3 WHOQOL-OLD sides (autonomy, social participation or death and dying), the sole important distinction was that the ADT cluster had considerably reduced physical QOL compared to the non-ADT and general population Well teams.

The considerably reduced physical QOL for the ADT cluster was in keeping with older North yankee [11] and European [12] studies' findings and certain reflects the numerous physical side-effects and symptoms seen with prolonged ADT usage [6–8].

In distinction to the results for physical QOL, no important variations in alternative 3 QOL domains and 3 sides were determined between the ADT and every one alternative teams. whereas such a result's in keeping with many alternative studies [9–11], it appeared well completely different to van Andel and Kurth [12] UN agency determined important reductions in many EORTC-C30 (emotional perform and international QOL) and SBQ domains (erectile pathology, sexual interest, sexual issues, sexual pleasure) QOL domains furthermore as increase in fatigue and hot flushes for the ADT cluster. However, the EORTC-C30 and a few domains of the SBQ could also be criticised as being a lot of of a proof listing than a real assessment of Associate in Nursing individual's perceptions of their QOL [28]. so it's quite doable that since the ADT cluster had been on ADT for a mean of roughly four years that they will become acquainted with these side-effects and symptoms, in order that they not perceived them as reducing their QOL, however that they were a daily part of their lifestyle. Such a read is in keeping with Potosky et al. [29] UN agency determined that men with prostatic adenocarcinoma UN agency were a pair of years post-radical cutting out or external beam radiation therapy had important variations in many symptoms however no important variations in QOL. conjointly, these results any support the rivalry of QOL researchers that assessing symptoms doesn't essentially correlate to individuals' perceptions of their QOL, particularly if such symptoms have existed for Associate in Nursing extended amount of your time.

The significant loss of physical however no alternative QOL domains and sides within the ADT cluster counsel that cancer clinicians and allied health professionals ought to monitor and frequently devote a while to discussing problems moving physical QOL with their patients on ADT [30]. whereas sizable analysis has targeted on up chemo- radiation, surgical and medicine techniques to scale back side-effects and symptoms and/or maintain physical QOL in prostatic adenocarcinoma survivors on ADT [31, 32], cancer patients and survivors can also take pleasure in analysis examining complementary therapies specializing in increasing physical activity levels or up nutritional intake. Physical activity programs, particularly those involving resistance coaching show a lot of promise in up numerous domains of QOL furthermore as body composition and physical perform, thereby reducing the chance of pathology, falls connected fracture and cardio metabolic syndrome [33].

This study isn't while not its limitations. Its sample size per cluster was moderate compared to the literature, being significantly larger than some studies [11, 12] however considerably but others [9, 10]. However, as these larger studies concerned North yankee knowledge sets from 1994 and 1995, the relevancy of their results to however ADT is presently utilized in the hemisphere is somewhat unclear. This potential lack of relevancy of those older studies to this state of affairs within the hemisphere could replicate changes in ADT procedures over this era of your time, potential northern vs hemisphere distinction in treatment approaches further as variations in cultural attitudes between these countries. like alternative survey based mostly studies, the difficulty of however representative this sample of adenocarcinoma survivors area unit of the population is often some concern. However, the responses rates of ~40% within the current study were love alternative studies during this space [13, 34]. Further, as a cross-sectional comparison, it's unattainable to work out causing, so these variations in QOL could be influenced by variations in these groups' perceptions of their QOL

before the cancer identification and/or treatment. in addition, the ADT and non-ADT weren't matched in line with illness characteristics like prevalence of bone metastases, and comparisons so relied on applied mathematics management of covariates.

Conclusion

Overall, the results of this study recommend that cancer clinicians and allied health professionals ought to attempt to habitually monitor and discuss problems poignant the physical QOL of their adenocarcinoma patients on ADT further because the additional common outcomes together with bone mineral density, prostate specific antigen levels and risk of cardio-metabolic syndrome. whereas the shortage of serious variations within the alternative QOL domains and sides was contrary to our hypothesis, it should replicate a mixture of many factors. These might probably include: (1) reduced side-effects of latest compared to historical ADT practices; (2) the boys on ADT had become acquainted with ADT's side-effects and symptoms over many years and thus didn't feel it affected several aspects of their QOL; or (3) the challenges of victimization quantitative questionnaires to assess QOL in clinical populations. Future analysis may need to use longitudinal analysis styles involving mixed-method knowledge assortment approaches to raised perceive the impact of ADT on QOL in adenocarcinoma survivors and to look at the impact of ancient oncologic and complementary therapies on up their physical QOL and reducing the danger of developing extra comorbidities.

References

1. Ministry of Health (2010) Cancer: New registrations and deaths 2006. Ministry of Health, Wellington.
2. Australian Institute of Health and Welfare (2010) Cancer in Australia: an overview.
3. Etzioni R, Tsodikov A, Mariotto A, Szabo A, Falcon S, et al. (2008) Quantifying the role of PSA screening in the US prostate cancer mortality decline. *Cancer Causes Control* 19:175–181.
4. Shahinian VB, Kuo YF, Freeman JL, Orihuela E, Goodwin JS (2005) Increasing use of gonadotropin-releasing hormone agonists for the treatment of localized prostate carcinoma. *Cancer* 103:1615–1624.
5. Meng MV, Grossfeld GD, Sadetsky N, Mehta SS, Lubeck DP, et al. (2002) Contemporary patterns of androgen deprivation therapy use for newly diagnosed prostate cancer *Urology* 60:7–11.
6. Galvão DA, Taaffe DR, Spry N, Joseph D, Turner D, et al. (2009) Reduced muscle strength and functional performance in men with prostate cancer undergoing androgen suppression: a comprehensive cross-sectional investigation. *Prostate Cancer Prostatic Dis* 12:198–203.
7. Gomella LG (2007) Contemporary use of hormonal therapy in prostate cancer: managing complications and addressing quality-of-life issues. *BJU Int* 99:25–29.
8. Bylow K, Mohile SG, Stadler WM, Dale W (2007) Does androgen-deprivation therapy accelerate the development of frailty in older men with prostate cancer?: a conceptual review. *Cancer*

110:2604–2613.

9. Penson DF, Feng Z, Kuniyuki A, McClerran D, Albertsen PC, et al. (2003) General quality of life 2 years following treatment for prostate cancer: what influences outcomes? Results from the prostate cancer outcomes study. *J Clin Oncol* 21:1147–1154.
10. Potosky AL, Reeve BB, Clegg LX, Hoffman RM, Stephenson RA, et al. (2002) Quality of life following localized prostate cancer treated initially with androgen deprivation therapy or no therapy. *J Natl Cancer Inst* 94:430–437.
11. Dacal K, Sereika SM, Greenspan SL (2006) Quality of life in prostate cancer patients taking androgen deprivation therapy. *J Am Geriatr Soc* 54:85–90.
12. van Andel G, Kurth KH (2003) The impact of androgen deprivation therapy on health related quality of life in asymptomatic men with lymph node positive prostate cancer. *Eur Urol* 44:209–214.
13. Bestmann B, Loetters C, Diemer T, Weidner W, Kuchler T, et al. (2007) Prostate-specific symptoms of prostate cancer in a German general population. *Prostate Cancer Prostatic Dis* 10:52–59.
14. Organ M, Wood L, Wilke D, Skedgel C, Cheng T, et al. (2012) Intermittent LHRH Therapy in the Management of Castrate-resistant Prostate Cancer (CRPCa): Results of a Multi-institutional Randomized Prospective Clinical Trial. *Am J Clin Oncol* doi: 10.1097/COC.0b013e31825d5664.
15. Al-Shamsi HO, Lau AN, Malik K, Alamri A, Ioannidis G, et al. (2012) The current practice of screening, prevention, and treatment of androgen-deprivation-therapy induced osteoporosis in patients with prostate cancer. *J Oncol* doi: 10.1155/2012/958596.
16. Spry NA, Kristjanson L, Hooton B, Hayden L, Neerhut G, et al. (2006) Adverse effects to quality of life arising from treatment can recover with intermittent androgen suppression in men with prostate cancer. *Eur J Cancer* 42:1083–1092.
17. WHOQOL Group. (1995) The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization. *Soc Sci Med* 41:1403–1409.
18. Skevington SM (2002) Advancing cross-cultural research on quality of life: observations drawn from the WHOQOL development. *World Health Organisation Quality of Life Assessment*. *Qual Life Res* 11:135–144.
19. Bonomi AE, Patrick DL, Bushnell DM, Martin M (2000) Validation of the United States' version of the World Health Organization Quality of Life (WHOQOL) instrument. *J Clin Epidemiol* 53:1–12.
20. Hsiung PC, Fang CT, Chang YY, Chen MY, Wang JD (2005) Comparison of WHOQOL-bREF and SF-36 in patients with HIV infection. *Qual Life Res* 14:141–150.
21. Abouassaly R, Paciorko A, Ryan CJ, Carroll PR, Klein EA (2009) Predictors of clinical metastasis in prostate cancer patients receiving androgen deprivation therapy: results from CaPSURE. *Cancer* 115:4470–4476.
22. Nørgaard M, Jensen AØ, Jacobsen JB, Cetin K, Fryzek JP, et al. (2010) Skeletal related events, bone metastasis and survival of prostate cancer: a population based cohort study in Denmark (1999 to 2007). *J Urol* 184:162–167.
23. Keogh JW, Shepherd D, Krägeloh CU, Ryan C, Masters J et al. (2010) Predictors of physical activity and quality of life in New Zealand prostate cancer survivors undergoing androgen-deprivation therapy. *N Z Med J* 123:20-29.
24. Edwards P, Roberts I, Clarke M, DiGuseppi C, Pratap S, et al. (2002) Increasing response rates to postal questionnaires: systematic review. *BMJ* 324:1183.
25. von Steinbüchel N, Lischetzke T, Gurny M, Eid M (2006) Assessing quality of life in older people: psychometric properties of the WHOQOL-BREF. *Eur J Ageing* 3:116–122.
26. Krägeloh CU, Kersten P, Rex Billington D, Hsu PH, Shepherd D, et al. (2012) Validation of the WHOQOL-BREF quality of life questionnaire for general use in New Zealand: confirmatory factor analysis and Rasch analysis. *Qual Life Res*.doi: 10.1007/s11136-11012-0265-0269.
27. Peel NM, Bartlett HP, Marshall AL (2007) Measuring quality of life in older people: Reliability and validity of WHOQOL-OLD. *Australas J Ageing* 26:162–167.
28. Dahele M, Fearon KH (2006) Functional Parameters of Nutrition. In: Mantovani G, Anker S, Inui A, Morley J, Fanelli F et al., editors. *Cachexia and Wasting: A Modern Approach*. Milan: Springer pp 125–135.
29. Potosky AL, Legler J, Albertsen PC, Stanford JL, Gilliland FD, et al. (2000) Health outcomes after prostatectomy or radiotherapy for prostate cancer: results from the Prostate Cancer Outcomes Study. *J Natl Cancer Inst* 92:1582–1592.
30. Keogh JW, Jones L (2011) The importance of promoting physical activity for cancer survivorship. (invited editorial). *N Z Med J* 124:4–9.
31. Woodward EJ, Brown JE (2012) Denosumab in the treatment of bone metastases. *Clin Invest* 2:519–526.
32. Loriot Y, Massard C, Fizazi K (2012) Recent developments in treatments targeting castration-resistant prostate cancer bone metastases. *Ann Oncol* 23:1085–1094.
33. Keogh JW, MacLeod RD (2012) Body composition, physical fitness, functional performance, quality of life, and fatigue benefits of exercise for prostate cancer patients: a systematic review. *J Pain Symptom Manage* 43:96–110.
34. Munch TN, Strömngren AS, Pedersen L, Petersen MA, Hoermann L, et al. (2006) Multidimensional measurement of fatigue in advanced cancer patients in palliative care: an application of the multidimensional fatigue inventory. *J Pain Symptom Manage* 31:533–541.