Prevalence of depression in patients with metastatic prostate adenocarcinoma undergoing castration Experience of the medical oncology department of the CHU HASSAN II in Fes, 100 cases reported

Abstract:

Introduction: Prostate cancer is the most common cancer in men, and psychological symptoms such as depression frequently affect patients. Castration, whether medical or surgical, is often part of a combined therapeutic approach, including chemotherapy and/or new-generation hormone therapy. Castration lowers testosterone levels, which can contribute to depressive symptoms, as testosterone plays a role in regulating mood and emotional well-being. Assessing and managing the psychological impact of castration is therefore essential to ensure comprehensive patient care. This study aimed to determine the prevalence of depression in patients with metastatic prostate cancer undergoing medical castration.

Materials and Methods: We conducted a descriptive, and analytical, cross-sectional study including 100 patients with metastatic prostate cancer receiving medical castration at the Medical Oncology Department of Hassan II University Hospital, Fes. Data were collected through structured clinical interviews conducted by a psychologist, with informed consent obtained from all participants. The Beck Depression Inventory, adapted to the Moroccan context, was used to quantitatively assess depressive symptoms. This 21-item questionnaire rates the severity of depression on a 0–3 scale for each symptom. Based on depression severity, patients received tailored interventions ranging from supportive psychotherapy to combined psychotherapy and antidepressant treatments, coordinated by psychiatrists and psychotherapists.

Results: Among the 100 patients, the most common age group was 45–60 years (43%). Educational levels were: university 18%, secondary 30%, primary 32%, and illiterate 20%. Marital status: married 56%, divorced 21%, widowed 12%, single 11%. Residential areas: rural 54%, urban 46%. Depression prevalence was: no depression 9%, mild mood disturbance 26%, intermittent depression 18%, moderate 41%, severe 4%, and extreme 2%.

Conclusion: Depression is a common psychological problem in cancer patients. Our study highlights that depressive symptoms are prevalent among patients with metastatic prostate cancer undergoing castration, emphasizing the importance of routine screening and tailored psychological management in this population.

Keywords: Metastatic prostate cancer, Medical castration, Depression, Psychological assessment, Mental health.

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Main text:

<u>Introduction:</u>
Prostate cancer is the most common cancer in men and the second most common cause of cancer-related death[1]. Depression in men with prostate cancer has become a significant problem, with a prevalence of 16-30%[2]. Notably, almost a fifth of men with prostate cancer become depressed[3]. Despite these troubling effects of depression on many prostate cancer patients, the scale of the problem is largely unrecognized and underestimated[4].

Depression in prostate cancer patients has been associated with suicide, unpleasant lifestyle changes, poor treatment compliance, and poorer long-term outcomes[5,6].

Androgens and their receptors play an important role in the progression of prostate cancer. Anti-androgen hormone therapy (AHT), either chemical castration (LH-RH analogues) or surgical castration (bilateral orchiectomy), is the mainstay of treatment for metastatic prostate cancer[7].

It is therefore essential to assess and manage the psychological aspects of castration treatment to ensure optimal overall management of the prostate cancer patient.

The aim of this study was to calculate the prevalence of depression in patients with metastatic prostate adenocarcinoma undergoing medical castration.

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<u>Materials and methods:</u>

This is a descriptive and analytical cross-sectional study of 100 patients diagnosed with metastatic prostate cancer undergoing medical castration collected at the medical oncology department of the CHU HASSAN II in Fes.

Data were collected through clinical interviews with study participants. Informed consent was obtained from each participant prior to the interviews.

Patients who refused to participate and other types of cancer were excluded.

The interviews were conducted by a psychologist who followed a standardized procedure to ensure consistency and accuracy of data collection. Participants were asked to complete a questionnaire (Beck Depression Inventory) quantitatively assessing the intensity of depressive feelings. This questionnaire is adapted to the Moroccan context

and comprises 21 symptom and attitude items describing the manifestations of
depression, graded from 0 to 3 by a series of 4 statements, reflecting the degree of
severity of the symptom. Depending on the severity of the depression, patients benefited
from different interventions, ranging from psychological support through supportive
psychotherapy to combined treatments combining psychotherapy and antidepressants.
This care was orchestrated by specialized psychiatrists and psychotherapists, ensuring a
personalized therapeutic approach tailored to each patient's individual needs.

Data analysis was carried out using Statistical Package for Statistical Systems (SPSS)
software.

Results:

A total of 100 patients with metastatic castration-resistant prostate cancer were recruited.

The data collected were classified according to categorical variables.

The most common age group was 45-60 years (43%).Regarding the patients' educational
levels, 18% had a university degree, 30% had a high school diploma, 32% had a primary
school education, and 20% were illiterate.

In terms of marital status, 56% of patients were married, 21% were divorced, 12% were
widowed, and 11% were single.

Fifty-four percent of patients came from rural areas, and 46% came from urban areas.

In terms of income level, 16% had an income of less than 1,000 dirhams, 35% had an
income of less than 3,000 dirhams, and 49% had an income of more than 5,000 dirhams.

12% of patients had been diagnosed less than three months ago, 35% between three and
six months ago, and 53% more than six months ago.

Nine percent of patients were not depressed, 26% had mild mood disturbances, 18% had
intermittent depression, 41% had moderate depression, 4% had severe depression, and
2% had extreme depression.

The average total score on the Beck Depression Inventory was 20.32, with extremes
ranging from 4 to 45 and a standard deviation of 7.58, which falls between intermittent
depression and moderate depression.

Statistically insignificant differences were observed in the depression test results based
on age group (p-value=0.68), marital status (p-value=0.41), income (p-value=0.058), and
onset of illness (p-value=0.51).

Discussion:

In our study, the rate of depression calculated using the Beck Inventory was 47%. This rate is higher than the values reported in the literature. A meta-analysis including 27 studies with a sample of more than 4,000 patients with localized or advanced prostate cancer estimated that the prevalence rate of clinically significant depression was between 15% and 18%[8].

Another meta-analysis of observational studies, which included 655,149 patients in 11 studies, showed that the prevalence of depressive disorders is 5.81%[9].

In an earlier meta-analysis, the overall average prevalence of depression in cancer patients during or after treatment ranged from 8% to 24% depending on the instruments used, the type of cancer, and the stage of treatment[10].

For this group of patients, depression can stem from many causes, including psychological distress related to the diagnosis, both in the short and long term, and the pathophysiology of the cancer in question[11]. Not to mention the impact of androgen suppression on patients' mood, a study evaluating the effect of anti-androgen treatment in prostate cancer patients compared to healthy control patients without prostate cancer showed significant changes in self-reported mood, including an increase in depression, which is reversible within three months of stopping treatment[12]. Another study also showed that anti-androgen therapy is linked to depression and a reduced quality of life in patients with prostate cancer[13]. It should be noted that depression can occur at various stages of the cancer journey[14].

Conclusion:

Our study, like all studies conducted on depression and prostate cancer, has highlighted the importance of depression in this population, suggesting the need to screen these patients for depression in order to offer them appropriate therapy.

Acknowledgments:

References:

1.Siegel RL, Miller KD, Jemal A. Cancer statistics, 2015. CA Cancer J Clin. 2015;65(1):5–29. doi:10.3322/caac.21254

136   2.Rice SM, Oliffe JL, Kelly MT, et al. Depression and prostate cancer: examining
137   comorbidity and male-specific symptoms. Am J Mens Health. 2018;12(6):1864–
138   1872. doi:10.1177/1557988318784395

139   3.Watts S, Leydon G, Birch B, et al. Depression and anxiety in prostate cancer: a
140   systematic review and meta-analysiss of prevalence rates. BMJ Open.
141   2014;4(3):e003901. doi:10.1136/bmjopen-2013-003901

142   4.Tombal B. Prostate cancer, depression, and risk of suicide: should we pay more
143   attention? Eur Urol. 2010;57(3):396–397. doi:10.1016/j.eururo.2009.11.039

144   5.Sharpley CF, Bitsika V, Christie DRH. Understanding the causes of depression among
145   prostate cancer patients: development of the Effects of Prostate Cancer on
146   Lifestyle Questionnaire. Psychooncology. 2009;18(2):162–168.
147   doi:10.1002/pon.1382

148   6.Bennett G, Badger TA. Depression in men with prostate cancer. OncolNurs Forum.
149   2005;32(3):545–556. doi:10.1188/05.ONF.545-556

150   7.De La Taille A. Circonstances de prescription de l'hormonothérapie chez des patients
151   atteints de cancer de la prostate. Prog En Urol. 2009;19(5):313–320.
152   doi:10.1016/j.purol.2009.01.009

153   8.Watts S, Leydon G, Birch B, et al. Depression and anxiety in prostate cancer: a
154   systematic review and meta-analysis of prevalence rates. BMJ Open.
155   2014;4(3):e003901. doi:10.1136/bmjopen-2013-003901

156   9.Brunckhorst O, Hashemi S, Martin A, et al. Depression, anxiety, and suicidality in
157   patients with prostate cancer: a systematic review and meta-analysis of
158   observational studies. Prostate Cancer Prostatic Dis. 2021;24(2):281–289.
159   doi:10.1038/s41391-020-00286-0

160   10.Krebber AMH, Buffart LM, Kleijn G, et al. Prevalence of depression in cancer
161   patients: a meta-analysis of diagnostic interviews and self-report instruments.
162   Psychooncology. 2014;23(2):121–130. doi:10.1002/pon.3409

163   11.Pitman A, Suleman S, Hyde N, Hodgkiss A. Depression and anxiety in patients with
164   cancer. BMJ. 2018;361:k1415. doi:10.1136/bmj.k1415

165   12.Cherrier MM, Aubin S, Higano CS. Cognitive and mood changes in men undergoing
166   intermittent combined androgen blockade for non-metastatic prostate cancer.
167   Psychooncology. 2009;18(3):237–247. doi:10.1002/pon.1401

168   13.Saini A, Berruti A, Cracco C, et al. Psychological distress in men with prostate cancer
169   receiving adjuvant androgen-deprivation therapy. Urol Oncol. 2013;31(3):352–
170   358. doi:10.1016/j.urolonc.2011.02.005

171 14.   Kunkel EJ, Bakker JR, Myers RE, Oyesanmi O, Gomella LG. Biopsychosocial
172 aspects of prostate cancer. Psychosomatics. 2000;41(2):85–94.
173 doi:10.1176/appi.psy.41.2.85

174 **Tables:**

175 Tab. 1: Participants' mean depression scores as a function of age

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Age	N	%	Depression	Standard deviation	p-value
<45 years	19	19%	21,16	6,457	
45-60 years	43	43%	20,67	8,747	
>60 years	38	38%	19,50	6,753	0,685
Total	100	100%	20,32	7,585	

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178 Tab. 2: Participants' mean depression scores as a function of level of education

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level of education	N	%	Depression	Standard deviation	p-value
illiterate	20	20%	20,00	7,284	
primary school education	32	32%	20,62	8,530	0,991
high school diploma	30	30%	20,13	6,279	
university degree	18	18%	20,44	8,685	
Total	100	100%	20,32	7,585	

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181 Tab. 3: Participants' mean depression scores as a function of martial status

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Marital status	N	%	Depression	Standard deviation	p-value
Single	11	11%	21,36	5,732	
Maried	56	56%	19,25	8,147	
Divorced	21	21%	22,33	7,398	0,419
widowed	12	12%	20,83	6,450	
Total	100	100%	20,32	7,585	

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184   Tab. 4: Participants' mean depression scores as a function of income

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Income	N	%	Depression	Standard deviation	p-value
<1000dhs	16	16%	16,19	5,576	
<3000dhs	35	35%	21,14	7,441	
>5000dhs	49	49%	21,08	7,934	0,058
Total	100	100%	20,32	7,585	

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187   Tab. 5: Participants' mean depression scores as a function of habitat environment

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Habitat environment	N	%	Depression	Standard deviation	p-value
Rural	54	54%	20,31	6,933	
Urban	46	46%	20,33	8,364	
Total	100	100%	20,32	7,585	0,994

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190   Tab. 6: Participants' mean depression scores as a function of onset of the disease

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onset of the disease	N	%	Depression	Standard deviation	p-value
<3months	12	12%	22,58	6,082	
3-6months	35	35%	19,66	8,253	
>6months	53	53%	20,25	7,462	0,516
Total	100	100%	20,32	7,585	

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193   Tab. 7: Beck Depression Inventory (BDI)

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Total score for the 21 items	Level of depression
1-10	These ups and downs are considered normal.
11-16	Slightmooddisturbance
17-20	Intermittent depression
21-30	Moderatedepression
31-40	Severedepression
> 40	Extremedepression

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