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Original Research

The use of palliative medications before death from prostate cancer: Swedish population-based study with a comparative overview of European data

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Abstract ***Background:*** Symptoms of terminal cancer have previously been reported as undertreated. The aim of this study was to assess the use of palliative medications before death from prostate cancer.

Methods: This Swedish register study included men who died from 2009 to 2012 with prostate cancer as the underlying cause of death. We assessed the proportion who collected a prescription of androgen deprivation therapy, non-steroidal anti-inflammatory drugs, paracetamol, opioids, glucocorticoids, antidepressants, anxiolytics and sedative-hypnotics and the differences in treatment related to age, time since diagnosis, educational level, close relatives and comorbidities. Data were collected from 3 years before death from prostate cancer.

Results: We included 8326 men. The proportion who received opioids increased from 30% to 72% during the last year of life, and 67% received a strong opioid at the time of death. Antidepressants increased from 13% to 22%, anxiolytics from 9% to 27% and sedative-hypnotics from 21% to 33%. Men without close relatives and older men had lower probability to receive opioids (odds ratio [OR]: 0.56, 95% confidence interval [CI]: 0.47–0.66 for >85 years versus <70 years) and (OR 0.78, 95% CI: 0.66–0.92 for unmarried without children versus married with children).

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Conclusion: Our results represent robust epidemiological data from Sweden for comparison of palliative care quality between countries. The findings indicate that men without close relatives and older men are disadvantaged with respect to the treatment of cancer pain and need closer attention from health care providers and highlight the importance to identify psychological distress in terminal prostate cancer.

1. Introduction

Men who die from prostate cancer often suffer from pain, fatigue, depression, anxiety and sleep disturbances during their last years of life [1–4]. Androgen deprivation therapy (ADT) is the mainstay of treatment for metastatic prostate cancer, but it adds a range of adverse side-effects including fatigue and an increased risk of depression [5,6]. Undertreatment has previously been reported both for cancer pain and mood disorders [7,8]. The aim of this study was to investigate the use of palliative medications in Swedish men with prevalent prostate cancer during the 3 years before death from prostate cancer and to assess the differences in treatment related to age, time since diagnosis, level of education, close relatives and comorbidities. Our hypothesis was that men of older age, with lower education and without close relatives would be disadvantaged.

2. Material and methods

2.1. Population and data collection

We identified all men registered with prostate cancer as the underlying cause of death in the nationwide Cause of Death Register between 1st January 2009 and 31st December 2012 who before death had been registered in the Swedish Cancer Registry (SCR). The men who were diagnosed less than 90 days before the date of death were excluded. Those diagnosed from 1992 and onwards are also registered in the National Prostate Cancer Register of Sweden (NPCR) [9]. We used information from the NPCR on the date of diagnosis, tumour-node-metastasis staging and tumour differentiation at diagnosis. The NPCR is linked by the personal identity number to other nationwide registers and demographic databases in Prostate Cancer data Base Sweden (PCBaSe). In this study, we used data from to the Cause of Death Register, the Prescribed Drug Register, the National Patient Register, the Multi-Generation Register and LISA (a database on socioeconomic factors) in PCBaSe 3.0 [10]. We used data from the same nationwide registers as previously mentioned for the men who were diagnosed before 1992 or who were not reported to the NPCR.

2.2. Design

We searched for collected prescriptions by their Anatomical Therapeutic Chemical (ATC) codes in the Prescribed Drug Register, which started on July 2005. It has an almost complete capture of collected prescriptions linked to the personal identity number. ADT included oestrogens (ATC code L02AA), gonadotropin-releasing hormone (GnRH)analogues (L02AE), antiandrogens (L02BB) and the GnRH antagonist degarelix (L02BX02). Surgical castration was included in this group by searching for the ICD codes KFC10 and KFC15 in the National Patient Register. Through the ATC codes, we also identified collected prescriptions of non-steroidal anti-inflammatory drugs (NSAIDs) (M01A), paracetamol (N02BE01), all opioids (N02A), the weak opioids codeine, dextropropoxyphene and tramadol (N02AA59, N02AC04 and N02AX02), glucocorticoids (H02AB), antidepressants (N06A), anxiolytics (N05B) and sedative-hypnotics (N05C). Since GnRH analogues can be prescribed for periods of six months, the search for ADT was performed in intervals of 180 days, whereas the search interval was 90 days for all other groups.

We collected data from 3 years before death from prostate cancer or from the date of diagnosis if time between diagnosis and death was shorter than 3 years. The result was analysed as a binary outcome, i.e. one single collected prescription during the interval was noted as positive. Odds ratios for collected prescriptions were estimated in multivariable logistic regression models, and comparisons were made with regard to age, time since diagnosis, education, close family, comorbidities and health care region. We also investigated the concurrent use of NSAIDs, paracetamol and opioids during the last 90 days of life to assess the adherence to the World Health Organisation (WHO) guidelines of using non-opioids as the base of the pain treatment with the addition of opioids until pain relief [11].

Educational level was categorised according to years of schooling: low (≤9 years), middle (10–12 years) and high (≥13 years). Comorbidities were classified by using the Charlson comorbidity index (CCI) based on data from the National Patient Register [12]. The Research Ethics Board at Umeå University Hospital approved the study.