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Original Article

Comprehensive Geriatric Assessment in Men Aged 70 Years or Older with Localised Prostate Cancer Undergoing Radical Radiotherapy

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Abstract

Aims: Treatment decisions for men aged 70 years or over with localised prostate cancer need to take into account the risk of death from competing causes and fitness for the proposed treatment. Objective assessments such as those included in a comprehensive geriatric assessment (CGA) might help to inform the decision-making process. The aim of this study was to describe the CGA scores of a cohort of older men with prostate cancer, evaluate potential screening tools in this population and assess whether any CGA component predicts significant acute radiotherapy toxicity.

Materials and methods: This was a prospective cohort study undertaking pretreatment CGA, Vulnerable Elders Survey (VES-13) and G8 assessment in patients aged 70 years and over with localised prostate cancer planned to undergo radical external beam radiotherapy.

Results: In total, 178 participants were recruited over a 3 year period and underwent a CGA. Fifty-five (30.1%) participants were defined as having health needs identified by their CGA. Both VES-13 and G8 screening tools showed a statistically significant association with CGA needs ($P < 0.001$ and $X^2 = 15.02$, $P < 0.001$, respectively), but their sensitivity was disappointing. There was no association between a CGA (or its components) and significant acute radiotherapy toxicity.

Conclusions: Many older men with localised prostate cancer are vulnerable according to a CGA. The screening tools evaluated were not sufficiently sensitive to identify this group. CGA outcome does not predict for significant acute radiotherapy toxicity.

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Key words: Comprehensive geriatric assessment; geriatric oncology; prostate cancer; radiotherapy tolerance; screening tests; toxicity

Introduction

Over the last 30 years, there has been a four-fold increase in the incidence of prostate cancer in men aged 70 years or over in England [1]. In 2010, the National Cancer Equality Initiative described inequalities in cancer care in the UK and identified that older people with cancer receive less intensive treatment than younger people [2]. In some scenarios this may be clinically appropriate [3,4], but when patient chronological age alone determines the extent of intervention, there is the potential for significant under-treatment to occur [5–7]. There is considerable scope for

both under- and over-treatment in the management of localised prostate cancer, where treatment options include radical surgery or radiotherapy, primary endocrine therapy or active surveillance. The decision as to which treatment approach is the most appropriate for an individual patient depends on tumour characteristics, the risk of death from competing causes, fitness for the proposed treatment and patient wishes. As the population ages and a greater number of older patients are diagnosed with prostate cancer [8,9], such decisions will increasingly be faced.

It has been proposed that a global assessment of health termed a comprehensive geriatric assessment (CGA) may be a useful objective measure by which to define health and predict the risk of death from competing causes of mortality and toxicity from treatment in older patients with cancer [10]. A CGA assesses functional ability, comorbidities and nutritional, cognitive, psychological and social status by

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means of a number of questionnaires. Many versions are available in the literature [11,12] and several studies have shown their use in identifying vulnerable older cancer patients [13,14]. A CGA may consequently have a role in predicting impaired tolerance and completion of oncological treatment, increased toxicity and need for treatment modification in this setting [15].

Once a CGA assessment is made, this result should be used as a trigger for further assessment and optimisation of the patient to address any reversible causes. A variety of models could be used, including, but not limited to, referral to a specialist geriatric service. There is limited evidence within the cancer population regarding the effect of a CGA, subsequent intervention on treatment received or cancer outcomes [15]. In localised prostate cancer, where radical radiotherapy typically starts after an induction period of androgen deprivation therapy, there is time to allow optimisation of patients before making a final decision on whether a patient is suitable for radical radiotherapy. However, prognostic validation studies in patients with early prostate cancer are lacking and studies predicting tolerance of treatment are limited.

The time constraints and staff competencies of standard oncological practice make a full CGA challenging outside of a research setting, but a screening tool could be carried out as part of a holistic needs assessment; this could be a workable solution, particularly if carried out by a specialist nurse or support worker, enabling geriatric assessment for all patients. A number of screening tools are available [16] and we have evaluated two in this population. The Vulnerable Elders Survey (VES-13) is a 13 item questionnaire covering age, self-rated health, limitations in physical function and functional disabilities. In the general geriatric population (aged 65 years or over), those with a score ≥ 3 have a 4.2 times increased risk of death or functional decline over a 2 year period compared with those with scores < 3 (49.8 versus 11.8%) [17]. The G8 screening tool was developed for use in the cancer population and so there are no data available for its use in the general population. The G8 covers nutritional intake, body mass index (BMI), mobility, neuropsychological problems, number of medications and self-rated health [18]. A score ≤ 14 has been shown to predict functional decline, chemotherapy-related toxicity and survival in several studies in solid tumours [16]. The G8 screening tool was included in the European Organization for Research and Treatment of Cancer (EORTC) 'minimum dataset' for CGA in patients with cancer in 2011 [19].

Here we describe the distribution of CGA scores in a population of men aged 70 years or over with a diagnosis of localised (non-metastatic) prostate cancer who are undergoing radical radiotherapy. Our aims were to describe the proportion of patients in whom a CGA identifies significant health needs, to identify if short screening tools may be an alternative to a comprehensive assessment in all patients and to examine if CGA scores predict significant acute radiotherapy toxicity. Further follow-up of this cohort will examine the role of CGA and screening tools in predicting functional decline in the years immediately after treatment

and therefore assess whether they are useful in determining which patients (who appear fit on standard clinical review) might not derive benefit from radical treatment due to competing comorbidities.

Materials and Methods

Study Design

This was a prospective cohort study.

Participants

Inclusion criteria were men aged ≥ 70 years, diagnosed with histologically proven prostate cancer of any T stage and Gleason score with NO MO disease. All participants were planned to receive fractionated external beam radiotherapy with radical intent, with endocrine treatment of any duration permissible. Exclusion criteria were inability to give informed consent, a life expectancy of less than 3 months, prior commencement or receipt of radical radiotherapy or prostatectomy (noting that a previous trans-urethral resection of prostate (TURP) was permissible).

Setting

Study recruitment occurred from December 2011 to December 2014, in outpatient departments at three hospital trusts in the Sussex Cancer Network, UK. All participants gave written informed consent for participation. The study was approved by NRES South East Coast-Surrey (11/LO/1382) and research and development approval was provided by participating trusts.

Data Collection

Baseline assessments were taken within 2 months before the start of radiotherapy. Patient demographics, Charlson comorbidity index [20–22], BMI, medication, tumour characteristics and treatment details were extracted from medical records. The following data were attained through a structured questionnaire via patient interview (by telephone or in person): World Health Organization performance status (0–4), VES-13 (0–13) [17,23], G8 score (0–17) [18,24], activities of daily living (ADL) (0–6) [10], independent activities of daily living (IADL) (0–8) [25], Mini Nutritional Assessment (MNA) (0–14) [26], Social Network Index (1–4) [27], place of residence and falls in the preceding 6 months.

Follow-up data were recorded at 12 weeks post-completion of radiotherapy. Radiotherapy treatment was detailed to include dose, schedule and start dates. Thirty day mortality was checked before the patient telephone call. Acute bowel and genitourinary side-effects (Radiation Therapy Oncology Group [RTOG] graded from 0 to 5 [28]) and treatment-related medical contacts (including general practitioner attendance and inpatient admission) were recorded from the patient telephone interview.

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