



Original Article

The Effects of Pelvic Radiotherapy on Cancer Survivors: Symptom Profile, Psychological Morbidity and Quality of Life



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Abstract

Aims: As cancer survival rates continue to increase, it is important to maximise the quality of life of cancer survivors. Pelvic radiotherapy is a common cancer treatment. Bladder, bowel and sexual dysfunction are recognised side-effects of treatment, and yet relatively little is known of the extent to which they remain problems in the longer term when patients are often managed by primary care, nor of the psychological impact of symptoms and effects on quality of life. Therefore, the aims of this study were to estimate the prevalence of bladder, bowel and sexual dysfunction late effects in a sample of cancer survivors; assess the impact of time since treatment on symptom prevalence; and explore the relationship between symptoms, psychological morbidity and quality of life.

Materials and methods: A questionnaire was given to a sample of cancer survivors treated in Oxford who had pelvic radiotherapy 1–11 years previously. The questionnaire measured patient-reported toxicity (Common Toxicity Criteria of Adverse Events/Late Effects of Normal Tissues – Subjective, Objective, Management and Analytic Measure), psychological morbidity (Hospital Anxiety and Depression Scale) and quality of life (European Organization for Research and Treatment of Cancer Quality of Life Questionnaire C30).

Results: In total, 418 (57.1%) completed questionnaires were received. Moderate/severe problems with bowel, urinary and sexual functioning were relatively common: bowel urgency (59% women, 45% men); urine urgency (49% women, 46% men); ability to have a sexual relationship affected (24% women, 53% men). Symptoms were just as frequent in those 6–11 years after treatment as in those 1–5 years after treatment. Symptom severity was significantly associated with poorer overall quality of life and higher levels of depression.

Conclusions: Late effects are common among long-term cancer survivors who have had pelvic radiotherapy, and are associated with reduced quality of life and psychological morbidity. It is imperative due attention is paid to this issue during the follow-up phase – both in secondary and primary care. Health care professionals providing follow-up care need to be aware of the importance of assessing and monitoring symptoms, and need to be adequately informed on the most appropriate management strategies.

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Key words: Late effects; long-term cancer survivors; pelvic radiotherapy; psychological morbidity; quality of life

Introduction

As survival rates continue to increase for many cancers, it is important that we develop a good understanding of the long-term and late effects of treatments and find ways to maximise the quality of life of cancer survivors.

Radiotherapy to the pelvic area is a common treatment for prostate, gynaecological, rectal, anal and bladder cancers, with around 17 000 people treated each year in the UK alone [1]. Radiotherapy is often used in combination with surgery, chemotherapy and hormonal therapy regimens. Although it is well known that some adverse effects on normal tissues are inevitable after radiotherapy treatment, currently these effects are not being routinely recognised, documented or managed appropriately in the UK.

A number of previous studies have discussed the extent of late effects. Severe consequences are rare, but it has been

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suggested, for example, that up to 50% of patients are left with long-term chronic gastrointestinal side-effects (such as diarrhoea and faecal urgency/incontinence) affecting quality of life [2–5]. Similarly, studies of patients treated for gynaecological malignancies suggest that 20–50% of patients are left with symptoms associated with bladder, bowel or genitalia sufficient to have a significant effect on quality of life [6–10]. However, many of the studies reported in the literature focus on patients with gynaecological cancers and on the first few years after follow-up. Much less is known about the effect on long-term survivors – those surviving beyond 3–5 years, many of whom will have been discharged from hospital follow-up to primary care.

As well as identifying and establishing the prevalence of specific late effects, it is also essential we understand the impact of these effects on psychological well-being and quality of life. This information is needed to inform interventions that can address troublesome effects. Therefore, the aim of this study was to provide an estimate of the prevalence of late effects of pelvic radiotherapy in a sample of long-term cancer survivors and to assess the effect of time since treatment on symptom prevalence. We also aimed to explore the relationship between symptoms, psychological morbidity and quality of life. Approval for the study was obtained from the Southampton and South West Hampshire Research Ethics Committee (reference 10/HO 502/60).

Materials and Methods

Recruitment

All patients who received radiotherapy treatment with curative intent to the cervix, uterus, vagina, rectum, bladder or prostate between 1999 and 2009 at the Churchill Hospital, Oxford, UK (at least 20 fractions of radiotherapy; 1.8–2.75 Gy/fraction) and who had not had a recurrence were eligible for inclusion in the study. The sample was stratified by time since treatment (1–5 years; 6–11 years). All women treated within the study time period were selected. Research radiographers at the hospital then removed patients known to have moved away or died from the sample (ascertained by checking the hospital Patient Admissions System and with the patient's general practitioner or on the Electronic Patient Record [SmartCard]). This left a total of 436 women (bladder $n = 12$; rectum $n = 102$, endometrium/uterine $n = 244$; vagina $n = 6$; cervix $n = 72$). The number of eligible men was much larger (bladder $n = 69$; rectum $n = 231$; prostate $n = 1557$). As we had planned to include a similar number of men and women in the study, we selected all men with bladder cancer and a random sample of men with rectal and prostate cancer. An online random number generator (<http://www.randomizer.org/form.htm>) was used for the random selection. Men known to have died or moved were then removed from the sample, leaving 69 bladder, 137 rectal and 194 prostate patients. Therefore, in total 836 patients (436 women and 400 men) were sent an invitation to participate in the study

signed by the consultant clinical oncologist, plus a study information sheet, self-completion questionnaire and free-post envelope. One reminder was sent to non-responders after 4 weeks.

Questionnaire

The questionnaire (available from the authors on request) collected data on socio-demographic and clinical information, including the year of diagnosis, cancer site, treatments received (surgery, chemotherapy, radiotherapy, hormones), if still attending follow-up and the presence of comorbidities (inflammatory bowel disease, vascular disease, lymphoedema, pelvic inflammatory disease, diabetes, abdominal pelvic surgery, rheumatoid arthritis, systemic lupus erythematosus, hypertension) that may influence side-effects from radiotherapy treatment.

The following validated scales were also incorporated.

Patient-reported toxicity

The Late Effects of Normal Tissues – Subjective, Objective, Management and Analytic Measure (LENT-SOMA) [11,12] was developed to provide a comprehensive framework for the objective and subjective assessment and grading of late effects due to radiotherapy [13]. This system has been incorporated into the National Cancer Institute's Common Toxicity Criteria of Adverse Events (CTCAE) scoring system (now the preferred platform for clinical trials) and developed into patient-reported toxicity questionnaires for a number of types of cancer (CTCAE/LENT-SOMA). For this study, version 3.0, female- and male-specific versions were used (questionnaires available from the Christie Hospital website and scoring manual available on request <http://www.christie.nhs.uk/the-foundation-trust/treatments-and-clinical-services/clinical-oncology-scoring-treatment-effects/ctcaelent-soma-questionnaires>). The questionnaire, which collects subjective self-reported information, is divided into five subscales for the female version (uterus/cervix, rectum/bowel, bladder/urethra, vagina and sexual function) and three subscales for the male version (rectum/bowel, bladder/urethra and sexual function). Only two subscales, rectum/bowel and bladder/urethra, are comparable between the genders. Following the scoring manual, each symptom was scored with increasing severity on a scale of 0–4. An average score was calculated from the questions within each subscale. If responses to 50% of the questions were missing in any one subscale for any one person, then the average score and subscale score were defined as missing for that person. If responses to fewer than 50% of questions were missing in any one subscale, values were imputed and an average value taken. A total score was also calculated. In addition, percentages of grade 2 (moderate) and grade 3/4 (severe) toxicity were also calculated for each item, to provide a more easily interpretable symptom profile.

Quality of life

The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire C30 version 3

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