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Development and evaluation of radiographer led telephone follow up following radical radiotherapy to the prostate. A report of a Macmillan Cancer Support Sponsored Pilot project at Mount Vernon Hospital

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ABSTRACT

Radiotherapy for localised prostate cancer is an effective and well tolerated treatment. Following radiotherapy, most men are followed up either in doctor or specialist nurse led hospital outpatient clinics. Attending clinics may be of little personal benefit as the majority of patients have few ongoing symptoms post radiotherapy and have very good cancer prognoses.

Recognising the limitations outpatient clinic follow up, we developed a radiographer led model of remote telephone follow up of patients completing radiotherapy for low to intermediate risk prostate cancer. Standardised toxicity assessments were performed and patient satisfaction assessed.

Radiographer led follow up detected similar levels of post radiotherapy GI, GU and sexual toxicity as outpatient clinic appointments, with a very high level of patient satisfaction compared to routine outpatient clinics.

We believe that radiographer led telephone follow up provides an alternative model for long term follow up of men after prostate radiotherapy.

Introduction

Prostate cancer is the most common cancer within men in the UK, forming 24% of all male cancer diagnosis made within the UK in 2010.[1] The majority of these patients present with low or intermediate risk organ confined disease (T1/2 disease, Gleason grade <7 PSA <20).[2] Multiple treatment options exist for organ confined prostate cancer, ranging from radical prostatectomy, radical external beam radiotherapy and seed brachytherapy to active surveillance. Approximately a third of eligible men opt for radical radiotherapy delivered using an external beam technique due to concerns regarding surgical resection, general fitness or a wish to be treated with a non-invasive technique.[3] External beam radiotherapy is an extremely effective treatment for organ confined prostate cancer with 5-year biochemical progression free rates of greater than 70% following treatment of low to intermediate risk disease.[4]

With the use of increasingly advanced planning and delivery techniques, external beam radiotherapy is well tolerated in the majority of men, with most patients having short term side effects which resolve completely.[5] Despite its effectiveness and favourable toxicity profile, a minority of patients will have late radiotherapy-induced side effects and toxicities, predominantly affecting bowel (GI), urinary (GU) and sexual function.[6–8] Even with a good prognosis, some patients do relapse, either locally within the prostate gland or with distal metastases, and require subsequent therapies, usually with androgen suppression.[9] For these reasons, NICE guidance in 2008 recommended that, post radiotherapy, all patients should be followed up.[10]

Usually post radiotherapy patients are followed up by the treating radiation oncologist in a hospital based outpatient clinic. There are multiple and increasing pressures upon uro-oncology clinics, with the introduction of new therapies and treatment options, meaning many more patients with advanced metastatic disease are being treated and requiring longer appointment times due to multiple medical issues. Additionally, with increasing life expectancies, PSA screening and awareness of prostate cancer, many more patients are being diagnosed with prostate cancer. Consequently the clinic time available for follow up patients is often short and pressured.

For many patients, multiple attendances as an outpatient may not be of personal benefit, as they recover from the radiotherapy with no ongoing toxicities and have been effectively cured from their cancer. Attendance as an outpatient often necessitates time off work, time away from family duties such as childcare and results in

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significant costs both in travel and car parking, and in lost income. Additionally patients may find that re-attending the hospital where they were diagnosed or underwent radiotherapy a stressful reminder of the cancer diagnosis and treatment, especially in men who are otherwise well.

Alternative models of follow up using specialist nurse led clinics have been shown to be effective and have shown high levels of patient satisfaction compared to traditional physician led follow up.[11] Urology specialist nurses often have a surgical background and may have little personal knowledge or experience of radiotherapy, especially where radiotherapy is delivered at a central cancer centre remote from the referring hospital. The workload of specialist nurses has also increased with their additional roles in managing patient pathways and greater involvement in palliative care.

Recognising the limitations and stresses upon outpatient clinic follow up and the potential limitations of specialist nurse led clinics, we developed a radiographer led model of remote telephone follow up and triage for patients completing radiotherapy for low to intermediate risk prostate cancer. The aim of this service was to identify patients with radiotherapy toxicities, or with evidence of relapsing disease, whilst minimising patient inconvenience. This is a relatively new model of patient follow up and therefore it was important to evaluate and understand its effectiveness and patient satisfaction compared to standard models of follow up.

The set-up of this service was supported and enabled by a service development grant from Macmillan Cancer Care.

Method

All patients (1014 patients) undergoing radical prostate radiotherapy between January 2011 and August 2013 at Mount Vernon Hospital were reviewed during treatment by a senior radiographer, to monitor tolerance to treatment and to assess and record acute toxicity. At the end of radiotherapy, all patients were reviewed by one of the radiographers and given telephone contact details in case of toxicity reactions developing after the completion of treatment. A telephone appointment was made for 6 weeks after the completion of radiotherapy for assessment of residual acute toxicity. Genitourinary (GU), gastrointestinal (GI) and skin toxicities were recorded weekly during the radiotherapy and at the 6 week post treatment time point using the ECOG acute radiotherapy toxicity scoring system.

After 6 weeks, patients fulfilling all of the following criteria were offered radiographer led telephone follow up as an alternative to standard clinic follow up

1. Low/Intermediate risk disease – T1/2 organ confined cancer, PSA <20, Gleason $\leq$7
2. Patients requiring 6 months or less adjuvant androgen suppression
3. Patient preference for telephone follow up

Patients with high risk disease (Gleason $\geq$8, T3a or PSA >20) were referred back to clinician follow up. Due to the likely ongoing need for androgen suppression in high risk disease, and its associated side effects, it was felt that these patients were not suitable for remote follow up. Patients participating in clinical trials were also not suitable for telephone follow up. All other patients were offered a choice of either a standard clinic follow up appointment in 6 months or a radiographer led telephone appointment in 6 months. Patients remaining stable at 6 months were allowed to continue with telephone follow up, with repeat telephone appointments made for 12 months after the completion of therapy and then annually until 5 years post treatment. No patients have reached the 5 year time point, however patients will be discharged to GP follow up at 5 years with an open appointment for re-referral if new symptoms occur.

The telephone follow up was carried out by one of two radiographers using a structured interview protocol. Skin, GU and GI late toxicities were recorded using a proforma based upon the LENT-SOMA (Late effects of normal tissues consensus conference 1995[12]) toxicities questionnaire (Attachment 1). An assessment of erectile function was also made. The need for ongoing androgen suppression, alpha blockers and the use of phosphodiesterase 5 inhibitors such as Sildenafil or Tadalafil was also recorded.

Patients were referred for PSA blood tests prior to the telephone follow up and the results discussed with the patient during the appointment. Prior to entering into telephone follow up, PSA levels representing biochemical failure (based upon ASTRO Phoenix definitions of biochemical failure[12]) were established for each patient, which would trigger automatic referral back to the oncology clinic. The outcomes of the telephone follow up were recorded in the patient notes and a short clinic letter was generated to the patient, patient's GP and the referring clinician. If late radiation toxicities were identified at the telephone appointment which needed further medical input, re-referral to the original oncologist was triggered.

All patients continuing to 6 month and longer telephone follow up were invited to complete a patient satisfaction questionnaire (see Attachment 2) assessing their satisfaction with telephone follow up.

This paper reports the outcome of a clinical audit of a service development project established at our centre. As an audit of a new and developing clinical service, specific ethical approval was not required.

Results

1014 patients underwent radical radiotherapy for localised prostate cancer at Mount Vernon Hospital between January 2011 and August 2013. The average age was 69.9 years (range 45–88). Due to a pre-existing nurse led follow up clinic at a feeder hospital, approximately 300 patients were discharged from the radiotherapy service at the end of their treatment. Consequently, 710 men have been contacted for their 6 week assessment. Likewise, due to pre-existing services, patient choice and the discharge of high risk patients, only 134 men have undergone a 6 month telephone review, 69 have now had a 12 month review and 9 have had a 24 month review.

Assessment of toxicity data

Assessment of acute radiation toxicities at 6 weeks showed a very low rate of acute toxicity following radiotherapy. Audit of the first 100 patients showed only 18% patients had residual toxicity at 6 weeks.16/18 (88%) of toxicities were satisfactorily managed by telephone advice. Only 2 patients needed to come to clinic for further assessment. As a consequence, telephone review with the radiographers at 6 weeks rather than an outpatient clinic appointment has become standard practice for patients completing prostate radiotherapy at Mount Vernon Hospital.

The toxicity assessments for gastrointestinal, genitourinary and sexual functions at 6 months are shown in Table 1. Insufficient patients have reached the 12 and 24 month assessment points to provide useful toxicity data.

Patient satisfaction audit data

Of the 134 patients contacted at 6 months, 88 patients returned satisfaction questionnaires. Of these, 79 (92%) reported that telephone follow up was more or equally convenient compared to clinic attendance. 67 of 88 (76%) expressed a preference for the telephone service with 6 (7%) expressing no preference between clinic or