

Re-Radiation and Casodex in Locally Advanced, Radiation Recurrent, Locally Progressing Prostate Cancer

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Abstract

This report is to present the results of re-radiation and Casodex 150mg/day in patients with locally advanced, previously radiated prostate cancer. These 45 patients with locally advanced progressing prostate cancer were treated with further radiation to total prescription dose of 3120 cGy and Casodex 50mg T.I.D. These patients have shown alternative therapeutic treatment resulting in significant improvement in quality of life. Further clinical studies are warranted.¹

Introduction

There are at present limited effective treatment options in patients with locally advanced, previously radiated and progressing prostate cancer.^{1,2} The purpose of this study is to present the results of re-radiation and Casodex.

Materials and Methods

In 2005, a program for re-radiation and Casodex for patients with locally advanced and previously radiated prostate cancer was started at Christie Clinic Cancer Center. The 45 patients were 60% formally prostatectomy; 40% had definitive radiation treatments. The range of radiation dose in these patients was 5300 cGy to 6480 cGy. The re-radiation consisted of planning with CT-scan later with MRI plus the CT-scan with the GTV

outlining the prostate fossa or prostate. The CTV was set at .5 cm and the PTV was at .5 cm. The patients received treatment with the Varian without and with CT cone beam with adaptive radiation using IMRT. The Casodex 150mg/day was started approximately one week prior to the radiation. The radiation was 3120 cGy in 26 fractions twice a day and four to six hours apart. Forty-five were enrolled from 2005 to 2011. All 45 have been locally progression free.

Discussion

Prostate cancer is the most common malignancy and the second leading cause of cancer death among men in the USA. In the year 2000, it was estimated that 180,400 new cases of prostate cancer would be diagnosed and that 31,900 patients would die of the disease.^{1,16} The overall incidence of biochemical progression following treatment with radical prostatectomy, radiation, and radiation plus hormones is 15% to 40%.^{1,14,15} A significant number of patients will, therefore, develop recurrent prostate cancer after radiation.¹

Patients with recurrent prostate after radiation are commonly retreated with anti-androgens or orchiectomy.^{1,2} The antitumor effects of such hormonal treatment last for approximately one to two years, after which time the tumors become hormone refractory.^{1,17} Prostate cancer has a long natural history, and patients with early biochemical failure following radiation, with-

out other clinical evidence of local or systemic progression, are expected to have an average survival of five to ten years.^{1,2,3}

As a consequence of the long survival and limited treatment options for progressive disease, some of these develop symptoms due to disease. These can be due to progression in the pelvis with tumor invasion into the urethra and bladder. The result is urinary outlet obstruction, hematuria, and hydronephrosis. The tumor invasion can go into the rectum, resulting in bleeding, fistula formation, and rectal obstruction. The tumor invasion into the pelvic nerves and pelvic bones may result in intractable pelvic and perineal pain as well as pathological fracture.⁴

The treatment options presently available for locally advanced, previously radiated progressing prostate cancer include palliative surgical procedures such as TURP, ureteric stenting, cystoscopic tumor fulguration to limit urinary bleeding, and colostomy/urinary diversion to overcome rectal/bladder obstruction or fistula. The medical measures utilized in these patients included hormone manipulation, chemotherapy, narcotic or non-narcotic analgesics, anti-depressants, and blood transfusions.^{1,4}

Re-radiation has been used for treatment of previously radiated tumors in several areas including head and neck, breast, lung, and brain. The local control rates achieved with re-radiation range from 40% to 75%.^{1,7-9} Re-radiation has generally been used in combination with radiosensitizing agents, such as hormones, chemotherapy, and hyperthermia.^{1,7,8} In a report from Thomas Jefferson University, patients with recurrent rectal cancer were re-treated to a median dose of 3060 cGy plus 5-fluorouracil.

Bleeding, pain, and mass effect were palliated in 100%, 65% and 24%. The RTOG grade 3 and 4 late toxicity was 23% and 10%. Small bowel obstruction occurred in 17%, with only 3% requiring re-operation.^{1,10} Re-radiation of locally advanced pelvic tumors may, therefore, result in significant palliation with tolerable side effects.¹ In this study we have used similar doses to those used in the Jefferson and Robert Lurie Comprehensive Cancer Center Northwestern Memorial Hospital studies.¹ So far one patient has had significant late RTOG 3 toxicity; follow up with hyperbaric oxygen showed remarkable improvement. No urinary incontinence was present. The symptoms of diarrhea occur in 24% and constipation in 19%. The rectal bleeding was 6% and improved greatly with hyperbaric oxygen. Penile discomfort was 1%. We may successfully control the local disease with the prostate or prostate fossa in some patients, despite the fact that the cancer failed to respond to the initial radiation or surgery/radiation.

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