ELSEVIER

Critical Reviews in Oncology/Hematology 95 (2015) 144–153

CRITICAL REVIEWS IN
Oncology
Hematology
Incorporating Geriatric Oncology

www.elsevier.com/locate/critrevonc

Advances in the treatment of prostate cancer with radiotherapy

J. Gomez-Millan [a,*], M. Fernanda Lara [b], R. Correa [a], A. Perez-Rozos [a], Y. Lupiañez-Perez [a], J.A. Medina [a]

[a] *Department of Radiation Oncology, University Hospital Virgen de la Victoria, Malaga, Spain*
[b] *Department of Urology, University Hospital Virgen de la Victoria, Malaga, Spain*

Accepted 16 February 2015

Contents

Abstract

Introduction: Prognosis of prostate cancer has improved as a result of the combination with androgen deprivation therapy and the increase of radiation dose. However, a high number of prostate cancer patients will develop biochemical recurrence; therefore a research effort to increase the control of the tumour in these patients is necessary.
Methods: To increase the therapeutic ratio (the index between cytotoxic effects and normal tissue complications with a certain dose of radiation), different new strategies described in the literature have been reviewed.
Results: There are several strategies that may increase the efficacy of radiotherapy to treat prostate cancer. First is based on physics and technology, and second based on biology.
Discussion: Technical advances in radiotherapy allow intensification of radiation through escalation of the dose or in combination with chemotherapy. Furthermore, targeting specific molecular dysregulated pathways in the tumour will increase the effects of radiation specifically in tumour cells. Hopefully, these strategies will result in increased rates of tumour control in all prognostic groups, especially in high risk tumours and a subgroup of patients with intermediate risk tumours, minimizing treatment morbidity and increasing the therapeutic ratio of radiotherapy.

Keywords: Prostate cancer; Radiotherapy; Dose escalation; Stereotactic body radiotherapy

* Corresponding author at: Servicio de Oncologia Radioterápica, Hospital Universitario Virgen de la Victoria, Campus Teatinos s/n 29010, Málaga, Spain. Tel.: +34 951032617; fax: +34 951032615.
E-mail address: jaimegomezmillan@gmail.com (J. Gomez-Millan).

http://dx.doi.org/10.1016/j.critrevonc.2015.02.008
1040-8428/