SBRT and extreme hypofractionation: A new era in prostate cancer treatments?

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Abstract
AIM: Radiation therapy (RT) is a standard therapeutic option for prostate cancer (PC). In the last decades, several innovative technology applications have been introduced. 3-Dimensional conformal RT, volumetric/rotational intensity modulated RT associated or not with image-guided RT, are becoming largely diffused in the treatment of PC.

BACKGROUND: Considering that PC could have a low α/β ratio, similar to late-reacting normal tissues, it could also be highly responsive to fraction size. Thus, the reduction of the number of fractions and the increase of the dose/fraction seem to be reasonable choices in the treatment of this cancer. This review reported the technology evolution, the radiobiological and the clinical data about the role of extreme hypofractionated RT in the treatment approach of PC patients.

MATERIALS AND METHODS: Medline search and analysis of published studies containing key words: prostate cancer, radiotherapy, stereotactic radiotherapy.

RESULTS: Recent technological developments, combined with an improved knowledge of the radiobiological models in favor of a high sensitivity of PC to larger fraction sizes are opening a new scenario in its treatment, reporting favorable efficacy and acceptable toxicity, despite short follow-up.

CONCLUSION: Thus, thanks to technological improvement and the recent radiobiological data, "extreme hypofractionated RT" has been strongly introduced in the last years as a potential solid treatment option for PC.

KEYWORDS: Hypofractionation; Prostate cancer; Radiobiology; Radiotherapy


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