

166 Results from the Quality Research in Radiation Oncology (QRRO) Survey Evaluating Adherence to Quality Measures for Prostate Cancer Radiotherapy

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Purpose/Objective(s): The QRRO survey database is a valuable resource for estimating US benchmarks of indicators of quality treatment. We report the degree of adherence to clinical performance measures (CPM) in prostate cancer radiotherapy.

Materials/Methods: A two-stage stratified random sampling of radiation oncology facilities nationwide and within each facility of eligible patients was performed. Eligibility criteria included patients with non-metastatic adenocarcinoma of the prostate treated with external beam radiotherapy (EBRT) or brachytherapy (BRT) in 2007. Patients previously treated with surgery, or those treated for recurrent disease were excluded. After obtaining institutional internal review board approval, the radiotherapy treatment records and treatment plans of 384 patients from 42 institutions were reviewed by trained research associates. For the purposes of this survey the following were considered established (based on published guidelines) and emerging (based on early results of clinical trials) CPM: 1. use of high energy linear accelerator for EBRT; 2. use of ≥ 75 Gy for intermediate and high risk disease treated with EBRT; 3. use of androgen deprivation therapy (ADT) in conjunction with EBRT for high-risk disease; 4. dose-volume histogram (DVH) evaluation of target and normal tissue structures for EBRT; 5. use of daily target localization during EBRT; and 6. post-treatment dosimetric assessment of target coverage following BRT.

Results: For EBRT, high-energy linear accelerators were used (6 MV, 47%; 10 MV, 10%; >10 MV, 43%). For intermediate- and high-risk EBRT patients, prescription doses of ≥ 75 Gy were used in 74%, 72-74 Gy in 15%, <72 Gy in 11%. Eighty-seven percent of high-risk EBRT patients received ADT. DVH assessments were recorded in 98% of EBRT treatment plans. Sixty-seven percent of patients had daily localization of the prostate target (fiducial markers, 40%; cone-beam or CT, 12%; transabdominal ultrasound, 15%); the rest had electronic portal imaging or standard portal films weekly or less often. Post-BRT dosimetric assessment of the D90 and V100 was done in all LDR-BRT patients.

Conclusions: Excellent adherence to established and emerging quality indicators was seen in $\geq 75\%$ of surveyed US prostate cancer patients treated in 2007. This reflects excellent penetrance and acceptance of published treatment guidelines based on clinical trials among practicing radiation oncologists.

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167 Treatment of Intermediate-or High-risk Prostate Cancer by Dose Escalation with High-dose 3D-conformal Radiotherapy (HD-3D-CRT) or Low-dose 3D-conformal Radiotherapy Plus HDR Brachytherapy (LD-3D-CRT+HDR-B): Early Results of a Prospective Comparative Trial

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Purpose/Objective(s): To report early and late toxicity and preliminary biochemical outcome in 445 patients with intermediate- or high-risk clinically localized prostate cancer treated with either HD-3D-CRT or with LD-3D-CRT+HDR-B.

Materials/Methods: Between December 1999 and October 2005, 445 patients (pts) with PSA >10 , Gleason score >6 and/or T2b-T3 N0 M0 prostate cancer entered the study. Pts were assigned to one of the two treatment groups: 76 Gy HD-3D-CRT to the prostate in 38 fractions (group 1; 223 patients) or 46 Gy LD-3D-CRT+ 16 Gy HDR-B given in 2 fractions of 8 Gy (group 2, 222 patients). Both groups were well balanced taking into account patient's as well as tumors' characteristics. Toxicities were scored by the EORTC/RTOG morbidity grading scales. Special attention to local, regional, or distant recurrence, survival, late effects, PSA and testosterone levels, and quality of life was done.

Results: All pts completed treatment. None pts included in the group 1 or 2 experienced grade 3 rectal toxicity. Twenty-eight pts of group 1 (12.5%) and 6 pts of group 2 (2.7%) developed grade 2 rectal toxicity (rectal bleeding or urgency). Fifteen pts in group 1 (6.7%) and 3 pts in group 2 (1.3%) developed grade 1 rectal bleeding (less than 2 times/week). In group 1 and 2, 81.8%, and 95.9% of pts were free from rectal reactions, respectively ($p < 0.005$). Nineteen pts in each group developed acute Grade 2 urinary symptoms (mainly dysuria), and none experienced urinary retention. No pts (0%) developed Grade 3 or 4 rectal or urinary complications. With a mean follow-up of 77 months, the 5-year actuarial PSA relapse-free survival rates for intermediate- and high-risk group 1 pts were 90 and 89%, respectively and 97 and 96% for group 2 pts ($p < 0.05$).

Conclusions: High-dose 3D-EBRT +HDR brachytherapy is a safe and effective method of escalating the dose to the prostate without increasing the risk of late effects. Acute and late rectal and urinary complications were significantly reduced with the combined treatment, compared with what was observed with high-dose conventional, 3D-CRT. Intermediate-term PSA control rates tends to be better with in the HDR-boosted patients as expected by higher effective-dose

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168 Long-term Results of an RTOG Phase II Trial (00-19) of External Beam Radiation Therapy Combined with Permanent Source Brachytherapy for Intermediate Risk Clinically Localized Adenocarcinoma of the Prostate

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