Methods: Twenty-five evaluable HRPC pts with Karnofsky PS ≥ 60% received CTX: 100 mg/m^2/day × 10 every 3 weeks. Evaluation criteria of response: serum PSA and measurable disease. Median pre-CTX PSA level: 42.6 ng/ml (range: 0.6–761.0 ng/ml); 3 pts had normal PSA. Age range: 54–87 years (median: 73 yrs).

Results: With a median follow-up of 10 months (mo), range: 2–31 mo, we obtained 5 (20.0%) complete remissions (CR) with a median duration of 15 mo (range: 5–22 mo); 5 (20.0%) partial remissions (PR) lasting 3 to 20 mo (median: 6 mo); 5 (20.0%) stable diseases (SD), with a median duration of 6 mo (range: 1–7 mo) and 10 (40.0%) progressions (P). Median overall survivals after initiation of CTX were: CR: 27 mo (range: 6–31 mo); PR: 13 mo (range: 4–29 mo); SD: 8 mo (range: 3–16 mo); P: 9 mo (range: 2–15 mo). There were no deaths among CR, PR, and SD pts; 60.0% of P pts died of active HRPC. Number of CTX cycles to achieve objective response (CR + PR): 5 (range: 1–15). Toxicity was mild and well tolerable. (To be presented).

Conclusions: CTX is an efficacious and well tolerated treatment for HRPC pts. This may reflect in an apparent improvement of survival and quality of live of objective responders.

1415 PUBLICATION

The accuracy of patient positioning in irradiation of prostate cancer by portal film analysis

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Purpose: Portal imaging is used for quality assurance of radiotherapy treatment fields. We analyzed retrospectively the accuracy of treatment delivery in 34 prostate cancer patients (pts) treated by 4 field technique (BOX) pelvic irradiation followed by boost arc therapy, and in 25 pts treated by 4 "small" pelvic fields.

Methods: We compared weekly portal images to digitized simulation films using a computer assisted quality assurance program (PIPSpro, Masthead Canada) using fiducial points and contrast improvement filters technique to determine overdose and underdose of each portal film.

Results: Pelvic fields portal films of 34 pts (194, 97 AP-PA, and 97 lateral) were analyzed. The mean equivalent square field size was 16 × 16 cm^2 in AP-PA and 14.2 × 14.2 cm^2 in lateral. The average overdose area (AOA) was 2.75% (range 0.08–14.05), and average underdose area (AUA) was 2.74% (range 0.03–23.92) in AP-PA portals. In the lateral portals it was 2.49% (range 0.21–16.03), and 2.78% (range 0.29–29.55) respectively. Portal films of 25 pts (194, 98 AP-PA, and 96 lateral) treated by small fields were analyzed. The mean equivalent square field size was 10.6 × 10.6 cm^2 in AP-PA and 10.3 × 10.3 cm^2 in lateral. The AOA was 0.88% (range 0.00 × 2.80), and AUA 0.86% (range 0.00–2.70) in AP-PA portals, 1.03% (range 0.10–3.80), and 0.82% (range 0.00–2.40) in lateral portals.

Conclusion: The accuracy of prostate cancer patient positioning in our institution is in the range of 25% for large fields, and 1.0% for small fields.

1416 PUBLICATION

Rational mutagenesis of a recombinant anti-tumour antibody

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Purpose: C595 monoclonal antibody (an anti-MUC1 mucin antibody) and its fragments are currently being used to image superficial bladder tumours. To promote greater understanding of how C595 interacts with MUC1, molecular modelling, site-directed mutagenesis and standard immunoassays have been utilised to probe the antigen binding pocket

Methods: A model of C595 variable fragment (Fv) was produced using homology modelling. Residues of suspected importance in antigen recognition were selected for mutagenesis. Oligonucleotide directed mutagenesis was employed to produce mutations, and mutants were expressed in E. coli. ELISAs were performed to analyse effects of mutations on association and dissociation to MUC1.

Results: Ten mutant Fvs have been produced, each with differing relative affinities for MUC1. Mutations of Asp to Asn within the pocket yielded much longer association rates (H97DN, H100DN & H95DN have 22%, 64% and 87% of parental Fv association rate respectively), while a mutation of Asn to Asp in the pocket gave a longer relative dissociation rate (L93ND – 24% increase on parental rate). Some mutations had no appreciable effect on the antibody-antigen interaction.

Conclusion: Molecular modelling coupled with site-directed mutagenesis of an antibody binding pocket is a powerful tool for examining the antibody/antigen interaction. This study has scrutinised the antibody pocket for important residues involved in the interaction with MUC1 and has provided new lead entities for use as radio-imaging/-therapy agents in bladder cancer.

1417 PUBLICATION

Radiation therapy for Peyronie's disease

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Purpose: To retrospectively analyse treatment outcome in patients (pts) irradiated for Peyronie's disease (PD).

Methods: The radiotherapy (RT) records of pts irradiated for PD between 1982 and 1997 were reviewed. The RT schedule consisted of 13.5 Gy (9 × 1.5 Gy, 3 fractions per week) using orthovoltage in 138 pts, or 12 Gy (6 × 2 Gy, daily fractions) using electrons in 39 pts. RT schedule was not clearly reported in 2 pts.

Results: Of the 179 pts (median age 52 years), 78% presented with painful erections and 89% with penile deformity. The symptoms were present for a median duration of 6 months (range 1–72 months) prior to RT. 17% of pts had been previously treated (unsuccesfully) with other methods. Fibrous plaques were dorsally localized in 95% of pts and had an average surface of 3.3 cm^2 (range 0.5–18 cm^2). No RT related complications were reported except for transient dysuria in a single pt. Of the 139 pts who attended follow-up at a mean of 3 months (range 0–13 months), 71% reported that their pain was diminished or had disappeared. 21% of pts reported a decrease in their penile deformity. From a questionnaire mailed to 139 pts it was found that 72% were sexually active, 48% complained of erectile dysfunction and 49% were dissatisfied with their current sex life.

Conclusion: Low dose external RT (12–13.5 Gy) appears to be an effective treatment in pts with PD who have persistent complaints of painful erections. No significant RT associated morbidity is seen with such doses.

1418 PUBLICATION

Detection of bladder cancer by qualitative determination of human complement factor H-related protein (hCFHrp) in urine

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The purpose of this study was to assess a new qualitative urinary tumor marker for transitional cell carcinoma of the urinary bladder (TCC), human complement factor related protein (hCFHrp).

Urine samples of 298 individuals were examined for the presence of the human complement component H related protein (hCFHrp), using the BTA STAT test. The control group included 76 healthy volunteers and 110 patients with benign urologic diseases. The study group consisted of 82 patients with histologically proven bladder cancer. Samples of all patients were obtained prior to therapy.

HCFHrp was positive in 66/82 samples of patients with histologically proven bladder cancer (sensitivity: 80.5%). Sensitivity was dependent on tumor stage (pTa: 36.4%, pT1: 92.9%, pT2: 94.1%, pT3: 100%, pT4:100%). All patients with pT1G3 tumors were identified by the test. HCFHrp was negative in all healthy individuals (specificity 100%). In contrast, 58/110 HCFHrp determinations in patients with benign urologic disorders were false positive, resulting in an overall specificity of 72%.

We therefore conclude that hCFHrp is a sensitive marker for detection of bladder cancer and for identification of patients at high risk. BTA STAT is thus potentially useful for follow-up-studies in patients in whom benign disorders of the urinary tract can be excluded.

1419 PUBLICATION

Metastatic renal cell carcinoma: A new approach with combined radioimmunochemotherapy

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Purpose: Patients with secondary bone metastases from renal cell carcinoma (RCC) have a poor prognosis. The presented radioim-