and radiological imaging, and 19 patients without progressive or persistent muscle invasive disease, were offered concurrent chemoradiation with weekly cisplatin 25 mg/m^2. RT dose 64−66 Gy in 1.8−2.0 Gy per fraction with CT planning. Patients unfit to have either neoadjuvant or concurrent chemotherapy, received radiotherapy alone with the same fractionation. Following completion of their treatment, patients had regular cystoscopies (every 3 months) and regular f-up appointments (3−6 months).
Results: 31 male and 7 female patients, median age 75 years, range 27−86 years old (only 6 patients <70 years old). 4 patients had pelvic nodal disease and 1 patient para-aortic lymphadenopathy; they proceeded to CRT after complete response of the nodal disease to neoadjuvant chemotherapy. On follow up there were 5 local relapses (13%) with 2 salvage cystectomies, 1 pelvic lymphadenopathy relapse (3%), 5 distant metastases (13%), whilst 7 patients died without disease progression (18%).
Mean progression free survival (PFS) from the date of starting treatment was in excess of 4.7 years: 1718 days (95% CI 1138 to 2297 days). Mean overall survival (OS) was in excess of 5.1 years: 1882 days (95% CI 1402 to 2362 days). 5 year Kaplan Meier(KM) PFS for the CRT group was 58% compared to 30% for the RT group, whilst 5 year KM OS for the CRT group was 48% with 34% for the RT group.
Conclusions: In an elderly, predominantly unfit for surgery group of patients, bladder preservation with radiotherapy or chemoradiotherapy resulted in very meaningful control of their disease and mean survival of about 5 years.

7122 POSTER

Secondary Cancer Risk for Stage I Seminoma Patients − a Comparison of Adjuvant Treatment Versus Surveillance

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Background: Post-surgical management of stage I seminoma includes: surveillance with repeated CT-scans and treatment reserved for those who relapse, or adjuvant treatment with either immediate radiation therapy (RT) or carboplatin. The cancer specific survival is close to 100%. Cure without long-term sequelae of treatment is the aim. Our goal is to estimate the risk of radiation-induced secondary cancers (SC) death from for patients undergoing S, adjuvant RT or adjuvant carboplatin (AC).
Materials and Methods: We measured organ doses from CT scans (3 phases each one) of a seminoma patient who was part of the active surveillance strategy and from a man undergoing adjuvant RT 20-Gy and a 30-Gy salvage RT treatment to the para-aortic area using helical Intensity Modulated RT (Tomotherapy®) with accurate delineation of organs at risk and a CTV to PTV expansion of 1 cm. Effective doses to organs in mSv were estimated according to the tissue-weighting factors recommendations of the International Commission on Radiological Protection 103 (Ann ICRP 2007). We estimated SC incidence and mortality for a 10,000 people population based on the excess absolute risk model from the Biological Effects of Ionizing Radiation (BEIR) VII (Health Risk of Exposure to Low Levels of Ionizing Radiation, NCR, The National Academies Press Washington, DC, 2006) assuming a seminoma diagnosis at age 30, a total life expectancy of 80 years.
Results: The nominal risk for a fatal secondary cancers was calculated 1.5% for 15 abdominal CT scans, 14.8% for adjuvant RT (20 Gy para-aortic field) and 22.2% for salvage RT (30 Gy). The calculation assumed that the risk of relapse on surveillance and adjuvant AC was 15% and 4% respectively and that all patients were salvaged at relapse with RT.

	n CT abdomen/Pelvis = secondary cancer %	RT Dose and % receiving treatment = secondary cancer %	Total secondary cancer risk in %
Active surveillance	15 = 1.5%	30 Gy in 15% of pts = 3.3%	4.8
Adjuvant carboplatin	7 = 0.7%	30 Gy in 4% of pts = 0.88%	1.58
Adjuvant radiotherapy	7 = 0.7%	20 Gy in 100% of pts = 14.8%	15.5

Conclusions: These data suggest that: 1) Adjuvant radiotherapy is harmful and should not anymore be regarded as a standard option for seminoma stage I. 2) AC seems to be an option to reduce radiation induced cancers. Limitations: the study does not consider secondary cancers due to chemotherapy with AC (unknown). The use of BEIR VII for risk modeling with higher doses of RT needs to be validated.

7123 POSTER

Patterns of Care for Stage 1 Testicular Cancer in Australia in 2010

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Background: There are now several acceptable management options for early stage testicular cancer with cure rates approaching 100%. There is an international trend to surveillance to minimise treatment-associated morbidity.
The Australian and New Zealand Urogenital and Prostate Cancer Trials Group (ANZUP) undertook a survey of clinicians involved in the treatment of testicular cancer to determine the patterns of care in Australia and to explore the number and type of imaging procedures used in surveillance strategies.
Methods: An internet-based survey was sent to all clinician members of ANZUP, as well as membership lists of relevant Australian craft groups. The multiple choice questions asked about the management of strategy for all patients treated over the previous 12 months, preferred management strategies, and surveillance imaging protocols. The survey was approved by the University of Sydney Human Research Ethics Committee.
Results: 53 medical oncologists, 10 radiation oncologists, and 7 urologists documented the patterns of care for 644 patients.
For stage 1 seminoma, surveillance was employed in 33%, radiotherapy in 23%, a single dose of adjuvant carboplatin in 34%, and 2 doses of adjuvant carboplatin in 9%. For stage 1 non-seminoma, surveillance was employed in 60%, adjuvant chemotherapy in 35%, and RPLND in 5%.
Surveillance was the preferred strategy for low-risk non-seminoma in 74%, high-risk non-seminoma in 43%, low-risk seminoma in 53%, and high-risk seminoma in 22%.
The mean [SD] numbers of CXR, CT abdomen, and CT chest used in 5 year surveillance strategies for seminoma and non-seminoma were (9.2 [5.6], 9.4 [3.5], 5.1 [4.0]) and (11.8 [7.3], 10.0 [3.6], 6.2 [4.7]) respectively. For seminoma, 7% of clinicians used >15 CT abdomen and 3% used >15 CT chest. For non-seminoma, 8% used >15 CT abdomen and 5% used >15 CT chest.
Conclusion: Our results demonstrate that there is considerable variation in the management of stage 1 testicular cancer within Australia. The high proportion of seminoma receiving adjuvant chemotherapy is contrary to international trends of increasing surveillance. Surveillance protocols were highly variable. The radiation exposure from CT during imaging for surveillance could increase risk of secondary malignancies, particularly for patients receiving >15 CTs. There is a need to reduce radiation exposure from CT imaging for surveillance through standardised follow-up protocols and alternate imaging modalities.

7124 POSTER

Adjuvant Radiotherapy With or Without Chemotherapy in Patients With Stage III/IV Transitional Cell Carcinoma of the Upper Urinary Tract And/or Positive Resection Margin

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Background: The role of adjuvant radiotherapy still remains undefined in patients with transitional cell carcinoma of the upper urinary tract (UTTCC). To evaluate the role of adjuvant radiotherapy, we reviewed the clinical outcomes of patients with advanced stage III or IV UTTCC.
Materials and Methods: Between January 2007 and December 2010, 17 patients with stage III (n = 13) or IV (n = 4) UTTCC (16 patients with ureter cancer and 1 patient with renal pelvis cancer) were treated with nephroureterectomy and adjuvant radiotherapy with or without chemotherapy. As historic control group, we retrospectively reviewed 46 patients who were treated with nephroureterectomy alone for UTTCC between January 2000 and December 2005. All cases were stage III/IV or positive resection margin. 8 of 17 patients (41%) in adjuvant radiotherapy group had positive resection margin including 1 with grossly positive margin, while 7 of 46 patients (15.2%) in surgery alone group had microscopically positive margin. Adjuvant radiotherapy was delivered to tumour bed and regional lymph nodes with median dose of 50.4 Gy (range

34−60 Gy). Among total 22 patients, 9 of 17 (52.9%) patients in adjuvant radiotherapy group and 13 of 46 patients (28.3%) in surgery alone group received 2 to 6 cycles of adjuvant chemotherapy such as cisplatin with gemcitabine or methotrexate, cisplatin, vinblastine and doxorubicin.
Results: Median follow-up was 27.7 months (range 3.1–135.8 months). 20 of 63 patients experienced locoregional relapse, including 14 (22.2%) with regional nodes recurrence, 5 (7.9%) with tumour bed recurrence and 1 (1.6%) with both recurrence. Median locoregional free survival time was 20.1 months (range 2.1–135.8 months). Crude locoregional recurrence rate was 17.6% and 37% for patients who were treated with surgery followed by adjuvant radiotherapy and surgery alone, respectively (p = 0.144). 2-year actuarial locoregional recurrence free survival rate was 84.4% and 65% in adjuvant radiotherapy group and surgery alone group, respectively (p = 0.561). 2-year actuarial overall survival rate was 68.5% in adjuvant radiotherapy group versus 67% in surgery alone group (p = 0.366). Adjuvant radiotherapy also resulted in better locoregional relapse free survival in subgroup analyses for pT3/4 and positive resection margin cases. In pT3/4 subgroup, crude locoregional recurrence rate was 17.6% and 38.6% in adjuvant radiotherapy group and surgery alone group, respectively (p = 0.141). In positive resection margin subgroup, crude locoregional recurrence rate was 25% and 42.9% in adjuvant radiotherapy group and surgery alone group (p = 0.387). No grade 3−4 hematologic or other toxicity were observed during and after adjuvant radiotherapy with or without chemotherapy.
Conclusions: Despite short follow-up period for small numbers of patients in adjuvant radiotherapy group, results of current study show that adjuvant radiotherapy may have benefit for locoregional control of UTTCC, especially in patients with pT3/4 or positive resection margin. Further prospective study will be required to confirm the role of adjuvant radiotherapy in patients with stage III/IV UTTCC and/or positive resection margin.

7125 POSTER

Post-chemotherapy Retroperitoneal Lymph Node Dissection (RPLND) in Nonseminomatous Germ Cell Tumours (NSGCT) − Recurrence Pattern, Prognostic Factors and Outcome

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Background: RPLND following chemotherapy (CT) is a standard procedure for residual tumour in pts with advanced NSGCT. Many authors have emphasized the importance of achieving complete resection. Our analysis is focused on recurrence pattern, prognostic factors and outcome after radical (R_0) post-CT RPLND.
Methods: From 1987 to 2007, 837 CT-naïve pts with advanced NSGCT were treated in our department with first-line cisplatin- and etoposide-based CT. After completion of CT 249 pts underwent RPLND, 211 (85%) of them had R_0 RPLND. There was no surgery-related mortality. Twenty one (10%) pts had additional resections of residual tumour in other anatomical sites. All but 5 pts had normalized tumour markers at the time of surgery. Sixty four (30%), 98 (47%) and 49 (23%) pts belonged to good, intermediate and poor IGCCCG prognostic groups, respectively. Median size of residual RPLN was 4 (range, 1−17) cm.
Results: The pathological examination of RPLND specimens showed that 71 (34%) patients had teratoma, 102 (48%) − necrosis and 38 (18%) − viable GCTs. With median f.-up of 66 (range, 4–216) months, 37 (18%) pts relapsed, which resulted in 5-years PFS and OS of 83% and 89%, respectively. Median time to relapse was 6 months. In 8 (22%) out of 37 pts, relapse occurred >2 years after first-line treatment. Sites of relapses were retroperitoneal, lungs, liver and other in 23 (62%), 9 (24%), 6 (16%) and 7 pts, respectively. The only factors associated with relapse were initial stage (5-y. PFS IIA/B 93%, IIC 84%, III 75%, p for trend 0.009) and RPLN pathology (5-y. PFS necrosis 86%, teratoma 87%, viable GCT 60%, p = 0.003).
Conclusion: Radical RPLND following chemotherapy produces high cure rate even in pts with residual viable germ cell tumour. The only prognostic factors for relapse were initial stage and pathology of resected residual mass.

7126 POSTER

Long-Term Results of Brachytherapy for Carcinoma of the Penis

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Background: Brachytherapy (BT) in Penile Cancer is an appealing organ sparing alternative to surgical treatment in early-stage penile cancer. This treatment preserves penile morphology and function organ without compromising disease control or survival.
The aim of this study is to analyze oncology results, Acute and Chronic Toxicity, and organ preservation rate of Penile Cancer treated with BT in a single institution (University Hospital 12 de Octubre).
Materials and Methods: Between 1983 and 2008, 21 patients with localized Penile Cancer were treated with interstitial Low Dose Rate Ir 192 BT in our institution. The median delivered dose was 65 Gy, and the reference isodose rates were 85%. Patient age ranged from 39 to 82 years (mean, 60 years). Tumour stage was according to AJCC 7th Ed. There were 19% Cis tumours, 52% T1, 29% T2. All of them were N0M0. Of the patients, 10% had undergone excision biopsy, whereas another 10% had received "other focal therapies". Mean tumour diameter was 20 mm. Survival curves were calculated according to the Kaplan–Meier method. Differences were evaluated by Long-Rank test. All the events were described after BT. Toxicity were according to CTCAE-V4.
Results: Median follow-up was 64 months (RQ1-Q3, 26–132). 10 patients had been followed for 10 years minimum. Acute G $\geqslant$ III skin toxicity was present in 57%. Acute G $\geqslant$ III Urinary tract Obstruction was 15%, requiring temporary suprapubic or urinary catheter. G III Local infection rate was 5%. Chronic G IV skin toxicity was present in 33%; solved in all patients with topic treatment. G III Chronic Skin induration was seen in 5%. G II and III Chronic Urinary tract obstruction was seen in 14% each. Patient's criteria esthetic results were "Good" at 52%, and "Bad" at 14%. Local recurrences were in 5%, regional 10% and distant failure 5%. The 10 year actuarial penile preservation was 76%. Actuarial 10 year survival rates were as follows: Overall survival (OS) 85%, Disease-Free-Survival (DFS) 76%, Specific-Survival Rate 5%.
Conclusion: BT is an effective treatment, showing similar results to surgery in $\leqslant$ T2N0M0 Penile Cancer. There is a high organ preservation rate and an acceptable toxicity. It would be advisable to develop studies to evaluate Quality of Life in these patients in future.

7127 POSTER

Radical Radiotherapy of Bladder Cancer 64−74 Gy

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Background: In the treatment of locally advanced invasive bladder cancer could be used curative radiotherapy.
Materials and Methods: We treated 71 pts. with radical radiotherapy (RT) from 1/2003 to 4/2010 in doses 64−74 Gy (64 Gy − 19 pts., 66 Gy − 1 pt., 70 Gy − 50 pts., 74 Gy − 1 pt.). Median of age was 74 years. Ratio men:women was 2:1. TNM: T2 49%, T3 31%, T4 20%, NX 1%, N0 89%, N1 3%, N2 7%. Clinical stages: II − 47%, III − 39%, IV − 14%. Histology: 86% urothelial cancer. 99% pts. were contraindicated for the radical surgery. Chemotherapy (CHT) was administered in 7 pts. In 63 pts. CHT was contraindicated and 1 patient refused CHT. Patients were irradiated by 2 Gy to the doses 64−74 Gy on linacs by 3D RT in median time 51 days. RT was performed in 2−3 phases: PTV1 = pelvis (empty bladder) 44 Gy, PTV2 = empty bladder with rim 20 Gy, to the escalation 70 Gy PTV3 = tumour with rim (with full bladder) 6 Gy (or PTV2 = 26 Gy to the total 70 Gy). Posttreatment dispensary was performed by radiation oncologist and urologist. To evaluate the effect of RT was pivotal cystoscopy (CSK) and computer tomography (CT). CSK was the first 2−3 months after RT, then 3−4x a year. The first CT has been within 6 months, then 1−2$\times$ a year. For an objective evaluation it is important to make the first restaging at least 2−3 months after RT. Toxicity was evaluated according to RTOG.
Results: CR was achieved in 43 pts. (61%), PR in 14 pts. (20%). 10 pts. had PD after RT (14%). 4 pts. (6%) died before the first evaluation. Of the 43 pts. who achieved CR, 13 pts. subsequently failed (9 pts. locally, 4 pts. by generalization). A total of 39 pts. died till April 2011, 28 of the bladder cancer, 11 from other causes. Median follow-up is 25 months, 2 years OS is 64%. The median DFS after RT (ie, without subsequent surgery) is 14 months, 2 years DFS is 47%. Median follow-up after not-achieving CR or after failing is 11 months. At the last inspection was in CR 36 pts. (51%).