Table 1

Structure		Goal/ Constraint	Mean	Max	Min
PTV1[a]	D99% (Gy)	50	50	66	21
	V > 48 Gy (%)	95	97	100	77
PTV2[b]	D99% (Gy)	>69	70	76	60
	V > 74 Gy (%)	>95	98	100	92
Rectal wall	V > 40 Gy (%)	<60	48	59	41
	V > 50 Gy (%)	<50	35	48	21
	V > 60 Gy (%)	<40	23	35	14
	V > 70 Gy (%)	<25	14	25	6
	V > 75 Gy (%)	<15	6	13	1
	V > 78 Gy (%)	<8	1	6	0
Bladder wall	V > 50 Gy (%)	<50	33	63	28
	V > 70 Gy (%)	<20	20	42	37
Anorectal junction	Mean dose(Gy)	<45	48	58	18
	V > 50 (%)	<65	49	67	10
Urethra	D max (Gy)	<80	80	82	79
Right femur	V > 60 Gy (%)	<10	6.0	20	27
	V > 50 Gy (%)	<50	46	70	0
Left femur	V > 60 Gy (%)	<10	5	16	22
	V > 50 Gy (%)	<50	49	65	0

[a]Prostate and seminal vesicle plus anisotropic margin.
[b]Prostate plus anisotropic margin.

Results: Thirty-six percent of patients had no urinary toxicity and 66% had mild (grade 1&2) toxicity. No patient developed grade 3 urinary toxicity or higher. 68% of patients had no bowel toxicity and 32% had grade 1 or 2 bowel toxicity. No patient developed grade 3 or higher bowel toxicity. The median radiotherapy week of maximum bowel and urinary toxicity was the same at 5 weeks. Over a third of patients experienced no acute toxicity and no patients required treatment at two weeks following radiotherapy.
Conclusion: We have demonstrated that using a protocol employing the above dose constraints we can treat prostate cancer to 78 Gy with minimal toxicity. We will report on further outcomes as the data matures.

Oral presentations (Wed, 26 Sep, 09.00−11.00)
Urology

4500 ORAL

Evidence based guidelines for the follow-up of testicular cancer

N. van As[1], D.C. Gilbert[1], D.P. Dearnaley[1], A. Horwich[1], S. Beesley[2], J. Money-Kyrle[3], D. Bloomfield[4], R.A. Huddart[1]. *[1]Royal Marsden Hospital, Academic Radiotherapy, Sutton, United Kingdom; [2]Kent Cancer Centre, Clinical Oncology, Maidstone, United Kingdom; [3]Royal Surrey County Hospital, Clinical Oncology, Guildford, United Kingdom; [4]Royal Sussex County Hospital, Clinical Oncology, Brighton, United Kingdom*

Introduction: Testicular germ cell tumours are uncommon malignancies (UK lifetime risk 1 in 500 males) [1]. Since the introduction of Platinum based chemotherapy, high cure rates are achieved for all stages of the disease. The European Germ Cell Cancer Consensus Group has provided clear guidelines for the primary treatment of both Seminoma and Non Seminomatous germ cell tumours. There is however no international consensus on how best to follow patients after their initial management. As part of the process of developing guidelines for the SE England testis network we reviewed the available evidence and developed evidence based guidance to best practice.

Aim: To develop evidence based pragmatic, user-friendly follow-up protocols for all scenarios of both Seminomatous and Non-Seminomatous Germ Cell tumours (NSGCT).
Methods: We reviewed the available published literature and our own centre's extensive experience with germ cell tumours, producing follow-up guidelines.
Results: Individualised, pragmatic follow up protocols were produced for Seminoma/NSGCT managed by surveillance chemotherapy or radiotherapy. These encompassed the twin aims of follow-up – detecting relapse and monitoring late side effects of treatment. We developed an Excel program that allows the user to select the treatment scenario and enter the date of diagnosis, then produces an individualised follow up schedule for the patient. The Guidelines will be made available online.
Conclusion: Appropriate follow up must balance the benefit of disease detection against costs to both patient and health cares systems, particularly those resulting from excessive diagnostic imaging. Our protocols provide a pragmatic, easily accessible user-friendly basis for other centres to use or to adapt to suit their needs.

References

[1] Horwich, A., Testicular Tumours, 2nd edition. Oxford Textbook of Oncology, ed. R. Souhami. Vol. 2. 2002, Oxford: Oxford University Press.

4501 ORAL

Long term neurological and peripheral vascular toxicity following chemotherapy treatment of testicular cancer

J. Glendenning[1], A. Norman[2], D.P. Dearnaley[3], A. Horwich[3], C. Parker[3], R.A. Huddart[3]. *[1]Royal Marsden NHS Foundation Trust, Urology, Sutton London, United Kingdom; [2]Royal Marsden NHS Foundation Trust, Computing, Sutton London, United Kingdom; [3]Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Urology, Sutton London, United Kingdom*

Background: Testicular cancer is the commonest cancer of young men. It is curable in the majority of patients but given the long life expectancy of these men the late effects of treatment are an important consideration. We report here a cross sectional study of the long term effects of chemotherapy (C) on neurological function and development of Raynauds phenomena.
Methods: 739 patients treated between 1982 and 1992 gave written consent to enter the study. Patients were classified in two groups according to whether their received C (n = 384) or no C [NC] (n = 355). 67% of C patients received cisplatin based chemotherapy. Patients completed a general health questionnaire and quality-of-life (QoL) form (EORTC QLy-C30 with testicular module) and were assessed in clinic. Raynauds phenomenon (RP) was diagnosed on the basis of description of clear cold-related peripheral discomfort and skin colour change. Neurological examination, including peripheral nerve function testing for light touch, vibration sense (using a 128 MHz tuning fork) was performed. 577 patients underwent audiometry with hearing thresholds in each ear measured at 1000, 2000, 4000 and 8000 Hz. Patients were asked about the presence of tinnitus. On QoL a score of 3 or 4 ('quite a bit' or 'a lot') were considered significant.
Results: On physician assessment; peripheral neuropathy (PN) (C 21.7%, NC 9.1%, $p < 0.001$) and RP (C 20.3%, NC 1.7%, $p < 0.001$) were more common after chemotherapy. Similar results were obtained from QoL scores (score 3−4 PN C 12.5%, NC 5.5%, $p = -0.002$; RP C 9.7%, NC 3.6%, $p < 0.001$). The doses of cisplatin and vinca alkaloids was higher in those with both PN and RP. On regression analysis (RA), cisplatin dose and age were significant predictors for PN and cisplatin dose alone was predictor for RP. For hearing statistically significant differences in thresholds was only noted at 8000 Hz [median (IQR) threshold (dB) C 30 (17.5−52.5), NC 25 (15−38.7), $p < 0.01$) and was related on RA to age, cisplatin and vincristine dose. Subjective toxicity was present in a small proportion of patients and was not statistically different between groups (hearing difficulty C 6.5%, NC 3.4%, $p = 0.06$; Tinnitus C 7.7%, NC 4.9%, $p = 0.14$).
Conclusions: On long term follow up PN and RP remain detectable in about 20% and significantly symptomatic in about 10% of patients. Detectable effect on high frequency thresholds are also present but only cause significant problems to patients in a small proportion. These effects are persistent and related to dose of cisplatin +/− vinca alkaloids.