

peripheral neuropathy (17.94 vs. 11.66, $p=0.088$) and lymphedema scores were observed (10 vs. 1.66, $p=0.06$).

Twenty three patients who completed 6 months since IMRT, demonstrated improvement in physical and emotional function and significant decrease in symptom scales ($p < 0.05$) except insomnia score ($p=0.276$). On evaluation of cervix specific module, no difference was observed in functional scores as compared to baseline. However, an improvement in body image perception (81.31 vs. 97.47, $p=0.009$) and significant decrease in peripheral neuropathy ($p=0.014$) was observed. Though reduction in global QoL was observed, but scores remained higher than baseline scores. (70.28 vs. 65.21).

Conclusions: Patients with cervical cancer have higher QOL scores at 6 months after completing adjuvant IMRT than at baseline. However this effect needs to be confirmed at further follow up and a larger cohort of patients undergoing IMRT.

PD-0468

Long-term risk of secondary skin cancers after radiation therapy for Hodgkin lymphoma

L. Daniels¹, A.D.G. Krol¹, M. Schaapveld², H. Putter³, P.M. Jansen⁴, E.W.A. Marijt⁵, F. van Leeuwen², C.L. Creutzberg¹

¹Leiden University Medical Center (LUMC), Division of Radiotherapy, Leiden, The Netherlands

²Netherlands Cancer Institute, Department of Epidemiology, Amsterdam, The Netherlands

³Leiden University Medical Center, Department of Medical Statistics and Bio-informatics, Amsterdam, The Netherlands

⁴Leiden University Medical Center, Department of Pathology, Amsterdam, The Netherlands

⁵Leiden University Medical Center, Department of Haematology, Amsterdam, The Netherlands

Purpose/Objective: Survivors of Hodgkin's Lymphoma (HL) are at risk of secondary tumors. None of the studies of secondary cancers in HL survivors have focused on the risk of developing skin cancers. We investigated the risk of developing secondary skin cancers after radiation therapy for HL, both in comparison to treatment without radiotherapy and to an age-matched Dutch population.

Materials and Methods: We conducted a retrospective cohort study of 889 HL patients treated between 1965 and 2005. Data on diagnosis of secondary skin cancers were collected by linkage with the nationwide pathology database. Data on treatment fields were extracted from patient files. Incidence rates of skin cancers and of basal cell carcinoma (BCC) specifically were compared to the expected number based on age, sex- and calendar period-specific incidence rates in the Dutch population.

Results: 318 skin cancers were diagnosed in 86 patients. The majority of skin cancers (93%) were BCC. The standardized incidence ratio (SIR) of BCC in HL survivors was significantly increased compared to the general population (SIR 5.2, 95% CI 4.0-6.6), especially in the group aged <35 years at diagnosis (SIR 8.0, 95% CI 5.8-10.7). SIR increased with longer follow-up; after 35 years the SIR was 15.9 (95% CI 9.1-25.9), with 626 excess cases per 10.000 patients per year. The risk of skin cancer was significantly increased in patients treated with radiotherapy (as part of) their treatment in comparison to patients treated with chemotherapy alone (HR 2.75, 95% CI 1.01-7.45, $p=0.047$).

The majority of skin cancers developed within the radiation treatment fields (57%). Of the skin cancers that developed outside radiotherapy field 15% were located in near proximity of the radiation field borders.

Conclusions: Radiotherapy for HL is associated with a strongly increased long-term risk of developing skin cancer, both in comparison to the general Dutch population and to treatment with chemotherapy alone. Since risks increase with longer follow-up, the total number of skin cancers in HL survivors is expected to further increase, implicating a substantial and clinically relevant problem. Patients and health care providers should be aware of this risk, in order to facilitate preventive measures and rapid access to early diagnosis and treatment.

PD-0469

Hypo-fractionated radiation therapy compared to standard treatment regimen for GBL: local control and toxicity.

A. Podgorni¹, M. Galeandro¹, P. Ciammella¹, C. Bassi¹, N. D'Abbio¹, A. Botti¹, C. Iotti¹

¹Arcispedale S. Maria Nuova, Radiation Oncology Advanced Technologies, Reggio Emilia, Italy

Purpose/Objective: The standard treatment today is maximal surgical resection followed by concomitant chemo-radiation therapy followed by adjuvant TMZ, with median overall survival of 14.6 months and 2-year survival rate of 26.5%. Despite the progress in neurosurgery,

radiotherapy and oncology, the prognosis still result poor. In order to reduce the long time of standard treatment, in our institute we investigated the effects of hypofractionated radiation therapy (HFRT). For comparison, a group of 25 patients with similar characteristics and treated with Stupp protocol was retrospectively selected.

Materials and Methods: 67 patients affected by GBL underwent surgical resection were treated between October 2005 and December 2011 with HFRT followed or not by adjuvant chemotherapy with temozolomide (6-12 cycles). HFRT (5 Gy/fraction/day) was delivered to a total dose of 25 Gy in 5 fractions, dose prescribed at the 70% isodose. All patients received a non-contrast CT scan and MRI for treatment planning. After image fusion, the target volume was defined by the contrast-enhanced tumour edges on axial T1 and FLAIR sequences by consensus agreement of the neurosurgeon, neuroradiologist, and radiation oncologist. Treatment planning was performed to cover the 100% of planning target volume by 25 Gy, with maximum dose of 35.7 Gy. For treatment delivery, all patients received a portal image prior to each treatment fraction. Sex, age, type of surgery, Karnofsky performance status, Recursive Partitioning Analysis (RPA) classification, time between surgery and initiation of radiotherapy were analyzed as potential prognostic factors for survival using the univariate log-rank method.

Results: All patients have completed the treatment protocol. Median age was 64.5 years (range 41-82 yrs) with 31 females (46%) and 36 males (54%). Median KPS at time of treatment was 80. The surgery was gross total in 38 patients and subtotal in 14 patients; 15 patients underwent only biopsy. The patients characteristics of the two groups of patients are similar. With mean follow-up of 14.9 months (range 3-62 months), the median overall survival and median progression-free survival were 12.43 and 6.9 months, respectively. No grade 3-4 acute or late neurotoxicity was observed. Post-treatment median KPS was 90 (range 70-100). The overall tolerance of patients to HFRT was not different from that for conventional radiotherapy. Not statistically significant difference in terms of overall survival between HFRT group and Stupp protocol group was reported ($p=0.12$).

Conclusions: The HFRT can be used for patients with GBL, resulting in favourable overall survival, low rates of toxicity and satisfying QoL. Future investigations are needed to determine the optimal fractionation for GBL.

PD-0470

177 Lu-DOTA DOTATATE for advanced progressive meningioma: a pilot study

M. Aldridge¹, J. Maclean², A. Haroon¹, J. Bomanji¹, C. Walker², N. Fersht²

¹University College Hospitals NHS Trust, Nuclear Medicine, London, United Kingdom

²University College Hospitals NHS Trust, Radiotherapy, London, United Kingdom

Purpose/Objective: There is no established therapy for meningiomas that recur after surgery and radiotherapy. We carried out a pilot study to establish the tolerability and therapeutic potential of ¹⁷⁷Lu-DOTA(DOTA) which targets somatostatin receptors (sstr).

Materials and Methods: 6 patients with recurrent progressive G2 meningioma underwent ⁶⁸Ga-DOTA PET/CT to assess eligibility for treatment (tx). 4 cycles of 7.4GBq ¹⁷⁷Lu-DOTA were planned at 8-10 week intervals.

Protocol: antiemetic, cationic amino acid infusion to prevent renal toxicity (25g lysine/25g arginine in 1L of 0.9%NaCl over 4 hr), iv injection of ¹⁷⁷Lu-DOTA (30 mins), short course of dexamethasone to prevent neuroaxial oedema, weekly full blood count monitoring for 6 weeks.

Metabolic activity was assessed on ⁶⁸Ga-DOTA PET/CT prior to tx and at 1 year. Tumour size was evaluated on MRI by RECIST(1D) and WHO (2D) criteria and on a volumetric basis to establish a growth rate (GR) pre and post tx: $GR = \log_{10}(Vt/V0)/dt$ (exponential) and % growth per month (linear).

Dosimetry was performed on cycle 2 for 1 patient. Post-tx whole body imaging and SPECT/CT was performed at 2.2, 4.8, 21.4 and 92.6 hrs. Tumour volume was defined with contrast-enhanced CT at 21.4 hrs. Using a phantom derived SPECT sensitivity factor, the activity in the tumour at each time point was determined and a biexponential fitted to the time-activity curve. Accumulated activity was multiplied by the relevant s-factor determined for a spherical mass calculated from the tumour volume.

Results: All 6 patients had sstr +ve disease and commenced tx. 4 patients completed 4 cycles with minimal toxicity (G1 fatigue and G1 thrombocytopenia in 1 patient). Median administered dose was 7.4GBq, median interval 10 weeks. An overnight stay was required for radiation protection. 2 patients demonstrated symptom improvement (reduced seizures, improved muscle power). 2 patients stopped after 1