age, tumour size, grade, progesterone receptor and HER2 status were used to calculate hazard ratios and interaction terms. Analyses were stratified for nodal status.
Results: Patients with a CYP2C19*2 allele exhibited significant benefit from tamoxifen (adjusted Hazard Ratio 0.23 p = 0.0002), while patients with CYP2C19 wt/wt genotype did not (adjusted Hazard Ratio 0.60 p = 0.07). The test for interaction between treatment and CYP2C19 genotype was significant (p = 0.04). In patients who did not receive tamoxifen, CYP2C19*2 was a negative prognostic factor. We did not find a significant interaction between cyp2D6 genotype and treatment (p = 0.10)
Conclusions: Breast cancer patients with the cyp2C19*2 variant allele derive greater benefit from adjuvant tamoxifen than patients with the cyp2C19 wt/wt genotype. In the absence of adjuvant systemic therapy, the presence of a CYP2C19*2 allele has a negative impact on prognosis.

1406 POSTER DISCUSSION

Live Image Based Screen on Glioblastoma Stem Cells

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Glioblastoma is the most common primary brain tumour in the adult and no curative therapy is available. Cell models of the disease are largely inadequate, failing to represent the cells within the tumour mass responsible for the maintenance of the tumour. To these elusive Tumour Initiating Cells, drug screens should be directed. We have previously optimised protocols to routinely derive tumour-specific cultures of cells maintaining the self-renewal and differentiation potential of the Tumour Initiating Cells and mirroring the human disease in xenotransplants. Exploiting the potential of these novel adherent Glioblastoma Neural Stem Cells (GNS), we have developed a live image based method to screen for drugs acting on Glioblastoma. We first performed a proof-of-principle screen by which we identified both differential sensitivities of GNS cells to drugs and a common susceptibility to perturbation of serotonin signaling. We have further optimised our screening methodology in order to isolate compounds mediating cell cycle arrest and improved it with image analysis to detect compounds inducing changes in cell morphology, cell number or number of mitoses. Using a library of kinases inhibitors (EMD inhibitor select I and II) we have observed differential sensitivities of GNS cells to selected small molecules. We are now validating the effect of specific small molecules to the self-renewal, differentiation and survival of Glioblastoma stem cells.

1407 POSTER DISCUSSION

18F-FLT PET/CT Sequential Imaging to Quantify Tumour Proliferation During Radiotherapy in Patients With Lung and Head and Neck Cancer

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Background: Previous studies have evaluated the use of ^{18}F-3'-fluoro-3-deoxy-L-thymidine (^{18}F-FLT) a thymidine analogue as an imaging biomarker of proliferation. ^{18}F-FLT PET/CT can provide a non invasive, quantitative measurement of tumour proliferation across the entire tumour. We can use FLT PET to monitor response to treatment during radiotherapy. Our aim is to study the spatial and temporal changes in tumour proliferation with the use of different image-derived indices (SUVmax, SUVmean, SUVpeak) of ^{18}F-FLT PET/CT during radiotherapy treatment.
Materials and Methods: Patients with newly diagnosed head and neck SCC or non small cell lung cancer were prospectively enrolled in this pilot study. IMRT radiotherapy delivered 65 Gy in 30 fractions over 6 weeks. Each patient had a baseline scan before commencing treatment (median = 0d, range 0−3d) followed by 2−4 on treatment scans. Inclusion criteria: a) newly diagnosed HNSCC or NSCLC b) primary tumour or a lymph node measuring $\geqslant$2 cm c) candidates to receive radical radiotherapy $\pm$ chemotherapy. Imaging protocol: ^{18}F-FLT PET and CT images were acquired on a hybrid PET/CT scanner (Discovery VCT, GE). Scans were performed with the patient immobilized in standard radiotherapy treatment position, in order to improve positioning accuracy between scans. Emission scans were recorded between 45−60 min p.i after iv injection of 2.59 MBq/kg ^{18}F-FLT (max 185 MBq). Images were analyzed with HERMES Hybrid Viewer software. Gross Tumour Volumes (GTV) was delineated by applying 3 different methods: manual, an isocontour of SUV 1.4 (SUV1.4) around the tumour and by using a fixed percentage threshold 50% of the maximum signal intensity (SUV50%).
Results: 7 patients were enrolled, between June 2010 and March 2011. 6 of them had analyzable data. Patient characteristics are summarized in table 1. Average ($\pm$SD) SUVmax was 5.24$\pm$1.45 pre treatment, 1.85$\pm$0.55 after 10−20 Gy ($p < 0.01$) and 1.53$\pm$0.44 after 30−40 Gy ($p > 0.05$). Average ($\pm$SD) SUVpeak was 4.08$\pm$1.21 pre treatment, 1.41$\pm$0.41 after 10−20 Gy ($p < 0.01$) and 1.20$\pm$0.20 after 30−40 Gy ($p > 0.05$).
Conclusions: Our results so far are in agreement with previously published data. FLT uptake in both tumour and bone marrow decreased through treatment, with complete loss of signal from the bone marrow after 10 Gy. Significant changes in SUVmax, SUVmean and SUVpeak were observed after only 10 Gy (1 week) of treatment but not between early and later time points in the course of treatment. SUVmax and SUVpeak measurements were consistent through different methods of segmentation. Although different methods of delineation resulted in large differences in SUVmean, pre-treatment and early changes difference in uptake was significant ($p < 0.01$), but not between early and later in the course of treatment.

Table 1

Pt no.	Site	Clinical Stage	Treatment	Scan TD (Gy)
1	oropharynx	T2N0M0	RT+Cetuximab	0, 10, 20, 30, 50
2	oropharynx	T1N2bM0	RT+Cetuximab	0, 40
3	lung	T3N0M0	Radiotherapy	0,
4	soft palate	T2N2bM0	RT+Cisplatin	0, 20, 30
5	oropharynx	T1N2bM0	RT+Cisplatin	0, 10, 30
6	FOM	T2N1M0	RT+Cetuximab	0, 0, 20, 40
7	UKP	T0N2bM0	RT+Cisplatin	0, 10

RT = radiotherapy, FOM = fts;floor of mouth, UKP = unknown primary

1408 POSTER DISCUSSION

The Role of 2deoxy-2-[18F]fluoro-D-glucose Positron Emission Tomography and Maximum Standardized Uptake Value in Predicting Prognosis of Patients With Non-Small Cell Lung Cancer in Different Stages (I-IV)

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Background: To evaluate the correlation between the Maximum Standardized Uptake Value (SUV max) and clinical outcome in patients with Non-Small Cell Lung Cancer (NSCLC) in stage I-II and III-IV.
Materials and Methods: According to their clinical stage, 135 patients with NSCLC were divided in two groups: Group A (I-II) and Group B (III-IV). A pre-surgical FDG PET/CT study was performed in stage I-II patients. All patients in stage III-IV underwent at least 2 FDG PET/CT scans, one pre- and one post-treatment at the end of first-line chemotherapeutic treatment. In both groups SUV max and clinical outcomes were related to Student-*t* test and the optimal cut-off value of SUV max was calculated to predict prognosis. The probability of Disease-Free Survival (DFS) was investigated through the univariate analysis of Kaplan–Meier only and the Overall Survival (OS) was calculated for both groups. Furthermore in group B patients the possible correlation between the SUV max values and the initial response to the therapy (best response) was investigated by the Student-*t* test.
Results: The patients of the Group A (stage I-II) with SUV max >9 (cut-off value) and diameter of lesion >30 mm (cut-off value) reported the worst prognosis. In group B patients (stage III-IV) no reliable cut-off value of SUV max was found in correlation with prognosis and therapy response.
Conclusions: In early stage (I-II) NSCLC patients SUV provides useful information regarding the prognosis and an important correlation exists between responses according to CT and FDG-PET. In advanced stages (III-IV) the SUV has not been proved having prognostic significance.