Conclusion: PET/CT is a powerful tool in assessing the visceral as well as the skeletal metastases. It is not necessary to add bone scan to PET/CT for the staging purposes of NPSCC.

2110 POSTER

Evaluation of response to sorafenib treatment in advanced hepatocellular carcinoma (HCC): role of Positron Emission Tomography (PET) imaging

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Background: HCC is a major health issue, with increasing incidence worldwide. Sorafenib (an oral potent multikinase inhibitor directed against both tumor proliferation and angiogenesis) is the only aproved treatment that has shown to increase overall survival in advanced HCC. Conventional radiologic response assesment of HCC to sorafenib is difficult and RECIST criteria only demonstrates stable disease for most of the cases. PET is a noninvasive technique which might be an effective tool for evaluating response.
Methods: Advanced HCC patients (pts) were assesed before starting sorafenib treatment with a TAC-Fluorodeoxiglucose-PET sacn (FDG-PET). Those who had an elevated standardized uptake value (SUV) in any HCC lesion (positive FDG-PET scan when SUV >2.5) where reassesed with TAC -PET three weeks after the begining of sorafenib. Sorafenib was administered at the usual 400 mg/bid schedule.
Results: A basal PET scan was performed in 8 advanced HCC pts resulting in 5 positive PET scans (62%) and 3 negative (38%); mostly were male (6 pts) with a median age of 66.7 years (range 59 to 75); Child-Pugh status A/B/C 4/4/0; cirrhosis ethiology: HBV 1 pt/HCV 2 pts/Alcohol 3 pts/Primary biliary cirrhosis 1 pt/Unknown 1 pt; alpha -Phetoprotein mean level was 732.0 ng/ml (range 4.9 to 5338.0). All the 8 patients received at least 6 weeks of sorafenib. A second PET scan was performed to the 5 pts with basal positive PET 3 weeks after sorafenib had been started (range 2−4 weeks); 4 were negative and 1 positive. This correlated with 4 pts with radiologic stable disease and 1 pt with progressive disease. The 3 pts that had a negative basal PET scan progressed to sorafenib therapy. Median survival was longer for those 4 pts who had a metabolic response on FDG -PET (8 months) than for the 1 pt who had no metabolic response (4 months) and than for the 3 pts who had a baseline low SUV (5 months).
Conclusions: In this series 60% of advanced HCC showed with increased glucose uptake on baseline FDG -PET; early metabolic response on FDG-PET documented 3 weeks of sorafenib treatment seems to be a good predictor of clinical outcome. On the other hand, a low glucose uptake at base line FDG-PET might predict no response to sorafenib therapy.

2111 POSTER

Response and survival in oesophageal cancer patients following neoadjuvant chemotherapy assessed by FDG-PETCT imaging

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Background: Combined positron emission tomography with computed tomography (PETCT) using the tracer [18F] 2-fluoro-2-deoxy-D-glucose (FDG) is an important modality for staging oesophageal cancer and may also predict pathological response to chemotherapy. We conducted this retrospective review to assess the relationship between metabolic response measured by FDG-PETCT imaging following neoadjuvant chemotherapy in oesophageal cancer and survival.
Methods: Oesophageal cancer patients presenting to Northern Ireland Cancer Centre between January 2003 to May 2007, who had FDG- PETCT assessment for staging and also following neoadjuvant chemotherapy before surgery were included. Routine FDG-PETCT findings were collated and metabolic response evaluated. Responders were defined as $\geqslant$35% reduction in the tumour standard uptake values [SUV] for FDG. Median overall survival and Median event-free survival were obtained for metabolic responders and non-responders.
Results: 52 patients with a median age of 64.5 years (28−77) were identified. Of these, 42 (81%) had oesophageal carcinoma and 10 (19%) had Siewart type I or type II oesophageal-gastric junction (OGJ) carcinomas. Metabolic response was identified in 40 (77%) of patients. After a median follow up of 25.2 months, the median progression free and overall survival in metabolic responders and non responders has not been reached. 70% (n = 28) of responders and 63.6% (n = 7) of non responders are alive.
Conclusions: With the limited follow up and low number of expected events in this series, we did not find a correlation between metabolic response to neoadjuvant chemotherapy by FDG-PETCT with overall or event free survival. Further follow up of this group of patients is required; however, our data are in keeping with that recently reported by other groups.

2112 POSTER

Disease characterisation of triple negative breast carcinomas using functional MRI

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Background: Triple negative (ER-/PR-/Her2−) breast carcinomas (TNBC) are aggressive tumours with relatively underexplored imaging features. This study aims to assess DCE-MRI (Dynamic contrast enhanced MRI) characteristics of these tumours compared to a more favourable prognostic group, ER+/PR+/Her2− BC.
Materials and Methods: 80 patients (pts) with locally advanced BC underwent DCE-MRI prior to neoadjuvant chemotherapy as part of 2 prospective studies and were identified as ER-/PR-/Her2− or ER+/PR+/Her2− from core biopsy specimens. Baseline DCE-MRI kinetic parameters reflecting tissue perfusion, permeability and extracellular leakage space were measured from whole tumour regions of interest. Values for inflow transfer constant (K^{trans}), outflow rate constant (k_{ep}), leakage space (v_e), $IAUGC_{60}$, relative blood volume (rBV), Mean Transit Time (MTT) and relative blood flow (rBF) were compared across receptor status using the Mann-Whitney U test.
Results: 37 pts were assessable in total (16 pts ER-/PR-/Her2−, 21 pts ER+/PR+/Her2−). 22 pts with other receptor phenotypes were excluded, 12 were unable to undergo MRI, full receptor status was not available in 8 and 1 pt's tumour was not visible on MRI. TNBC comprised 19% of the total study population with a median age of 42.5 yrs (range 34−57) and median tumour size 60 mm (range 40–100). In the ER+/PR+/Her2− group, the median age was 49 yrs (range 26−70) and median tumour size 50 mm (range 25–150). Median k_{ep} values were significantly higher in TNBC (0.70 vs 0.56, $p < 0.05$). Significantly lower median values for v_e were also observed in TNBC (0.33 vs 0.39, $p = 0.001$) and MTT was shorter (44.27 vs 47.69, $p = 0.007$). There was no correlation between age and any kinetic parameters. When stratified according to tumour size and nodal status, k_{ep} was higher in TNBC but the differences did not reach statistical significance. Values for v_e were significantly lower in T3/4 TNBC (0.33 vs 0.41, $p = 0.009$) and for node negative BC (0.33 vs 0.41, $p = 0.004$). In node positive BC rBF was significantly higher in TNBC (5.87 vs 1.96, $p = 0.046$) and MTT shorter (43.69 vs 47.28, $p = 0.008$). Baseline v_e was the best predictor of triple negativity (sensitivity 81%, specificity 76%, area under ROC curve 0.80).
Conclusions: Increased cellularity and scant stromal content of tumours displaying the triple negative phenotype can be depicted reliably by the DCE-MRI parameter v_e which describes the extravascular extracellular space. Furthermore, increased k_{ep} reflecting the rapid return of contrast into the vasculature suggests that capillary permeability is also higher in TNBC.