2058 POSTER

Interval between diagnosis of advanced cancer and cessation of active anti-cancer treatment can predict survival in terminally ill cancer patients

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Background: Although various prognostic factors have been proposed to predict survival in terminally ill cancer patients, accurate prognostication is still a challenging task for oncologists. The objective of this study was to evaluate whether the time interval between diagnosis of advanced cancer and cessation of active anti-cancer treatment (ATP; active treatment period) can predict survival in terminally ill cancer patients.
Methods: We prospectively evaluated 79 patients with advanced (recurrent or metastatic) cancer who were determined as terminal stage, namely cessation of active anti-cancer treatment and transition to palliative care, by attending oncologists. ATP and other known prognostic factors including clinical symptoms and signs, performance status, laboratory tests, and clinical prediction of survival (CPS) were analyzed.
Results: Of the 79 patients, 46 were male (58%) and 33 were female (42%) with a median age of 60 years (range, 21–82). Median overall survival after being diagnosed with advanced cancer was 11.6 months (95% confidence interval (CI), 8.02–15.18), and survival after being determined as terminal stage was 1.9 months (95% CI, 1.38–2.42). According to 3 ATP categories (<3 months, 3–12 months, and >12 months), terminal stage survival were 1.0 month, 1.8 months, and 3.6 months, respectively ($p = 0.002$). On multivariate analysis, short ATP, non-colorectal cancer, fatigue, and Karnofsky performance status less than 50 were significantly associated with a poor prognosis.
Conclusion: Our study suggests that ATP is an independent prognostic factor for survival in terminally ill cancer patients who cannot receive active anti-cancer treatment anymore. Future prognostic models should include ATP as a prognostic variable.

Imaging

Poster presentations (Thu, 24 Sep, 09:00−12:00) **Imaging**

2100 POSTER

The role of 18F-FDG PET in detection of biliary tract cancer recurrence during surveillance: A single center observational study

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Background: Although recent improvements in diagnostic imaging, the detection and decision of recurrence of biliary tract cancer remain difficult until the tumor has grown to a considerable size. The goal of this study is to evaluate the clinical role of ^{18}F-FDG Positron Emission Tomography (^{18}F-FDG PET) in the assessment of disease recurrence after curative surgery in biliary tract cancer.
Patients and Methods: We consecutively enrolled biliary tract cancer patients, who checked PET for the suspicion of recurrence based on contrast computed tomography (CT) during surveillance after curative surgery from January 2000 to June 2008 in Seoul National University Hospital. The final diagnosis of recurrence was determined by a tissue confirmation or a change of lesions by the followed-up contrast CT after 3months. McNemar's test and Fisher's exact test were used to evaluate sensitivity and specificity of PET and contrast CT.
Results: A total of 50 patients were enrolled. Pathologic diagnosis was done in 9 patients and the others were evaluated with follow-up CT for the recurrence. Of these, 34 patients (68%) were confirmed as recurrence. The sensitivity was 88% (30/34) for PET and 76% (26/34) for CT (p = 0.16). The specificity was 69% (11/16) for PET and 44% (7/16) for CT (p = 0.10). The positive predictive value (86% vs 74%, p = 0.72) and negative predictive value (73% vs 47%, p = 0.55) was not different between PET and CT. Additional PET on contrast CT significantly increased the sensitivity of detection for recurrence than contrast CT alone (94% (32/34) in PET+CT vs 76% (26/34) in CT, p = 0.03) without increasing of specificity (38% vs 44%, p = 1.00), positive predictive value (76% vs 74%, P = 1.00) and negative predictive value (75% vs 47%, p = 0.72).
Conclusions: PET was as sensitive and specific as contrast CT in detection of recurred biliary tract cancer. Additional PET on contrast CT significantly increased the sensitivity compared to contrast CT alone, but the specificity, positive and negative predictive value were not improved. Further studies are warranted to validate the role of PET in detection of biliary tract cancer recurrence.

2101 POSTER

Evaluation of neoadjuvant chemotherapy with FDG PET/CT and MRI in adult patients with Ewing's sarcoma (ES) and osteosarcoma (OS): beyond RECIST

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Background: In ES and OS, prognosis drops dramatically if the histopathological response to neoadjuvant chemotherapy is limited. Early, adequate therapy evaluation prevents prolonged exposure to toxic yet ultimately unsuccessful treatment, which in some cases may be substituted by a more effective alternative. Because of distinct biological features of bone sarcomas traditional RECIST criteria probably do not represent tumor viability. Therefore, the aim of this analysis was to investigate whether next to standard volumetric criteria, necrosis measurement with MRI and activity evaluation with FDG PET/CT correlated with histopathological response after neoadjuvant chemotherapy.
Patients and Methods: Since October 2007 adult patients diagnosed with OS or ES at the Radboud University Nijmegen Medical Center were referred for both MRI and PET/CT imaging. Whole-body FDG-PET/CT and MRI of the affected site were performed at baseline and after neoadjuvant chemotherapy. For MRI tumor size changes and the amount of tumor necrosis defined as the proportion of areas with increased signal on T2-weighted contrast-enhanced images with fat saturation and decreased signal on T1-weigted images after neoadjuvant chemotherapy were assessed. For FDG-PET/CT the percentual decrease of maximum standardized uptake value (SUV_{max}, representing the most active parts of the tumor) after neoadjuvant chemotherapy as compared to baseline was calculated and the results were categorized according to the EORTC criteria for PET-response. All data were tested for correlation with response to chemotherapy as assessed by histopathology in resected tumors.
Results: To date, evaluable results of 12 patients (58% male, 58% OS, median age at diagnosis 19.5 years) are available. Tumor size changes were not correlated with necrosis in the resection material (Spearman rho 0.11, p 0.79), neither was the amount of necrosis as estimated by MRI (rho 0.16, p 0.70). In contrast, the percentual decrease of SUV_{max} and histopathological necrosis were strongly correlated (rho −0.81, p 0.027). However, subsequent categorization according to the EORTC PET-criteria was not significant (rho −0.40, p 0.375), indicating that the EORTC thresholds for PET response do not apply for OS and ES.
Conclusion: The percentual decrease of SUV_{max} strongly correlates with histopathological response to neoadjuvant chemotherapy. It is therefore a promising tool for early decision making in the management of ES and OS in future protocols.

2102 POSTER

PET-CT can reliably determine the tumour dimensions of rectal cancer

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Background: PET-imaging has proven to be a useful tool in radiotherapy treatment planning as well as in response evaluation. However, for rectal