49 p (75.3%). 60 p were evaluables for response and 62 p for toxicity. Induction D-C response: 33 PR (RR 55%; 95% CI:43−77), 18 SD (30%) and 9 PD (15%). 4 p went to surgery: 3 pPR and 1 pPD (unresectable). 40 p completed CChRT (5 p in treatment) with 5 CR, 23 PR, 4 SD and 8 PD (RR 70%; 95% CI:56−84). The median to PFS was 11 months (95% CI:7−15) and median OS was 12 months (95% CI:8−16). The PFS and OS at 1 year was 44.5%/48.1% respectively. A total of 175 cycles of D-C were administered (2.8 per p), with the main toxicity (NCI-CTC 3.0) per p Grade (g) 1−2/3−4 (%) was as follows: neutropenia 11.3/29; anemia 30.6/0.5; nausea/vomiting 30.6/4.8; fatigue 27.4/0; diarrhea 14.5/11.2; there were nine episodes of febrile neutropenia and there were one treatment-related death. The main toxicities per p in CChRT (D-C doses: 143, 3.5 per p) were: g1−2 neutropenia/anemia 13/34.7%; g1−2/3 esophagitis in 45.6/2.1% and g1−2 pneumonitis in 26%; there were one treatment-related death.
Conclusions: Induction chemotherapy with D-C plus concurrent TRT and biweekly D-C is a feasible treatment option for locally advanced NSCLC, showing good clinical activity and tolerability with promising survival.

9101 POSTER

Toxicity report of a phase I/II dose escalation study in inoperable locally advanced non-small cell lung cancer with helical tomotherapy and concurrent chemotherapy

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Purpose: To evaluate the feasibility and toxicity of radiation dose escalation using helical tomotherapy (HT) in patients with inoperable stage III non-small cell lung cancer (LANSCLC) with concurrent chemotherapy.
Patients and Methods: This phase I/II study was designed to determine the maximum tolerated dose (MTD) of radiotherapy in patients with LANSCLC, concurrently with docetaxel and cisplatin. Radiotherapy was delivered using HT. A dose per fraction escalation was applied starting at 2 Gy, with an increase of 6% per dose cohort (DC). The RTOG acute radiation morbidity score was used to monitor pulmonary, esophageal and cardiac toxicity. All other adverse events were scored using the NCI CTC version 3.0.
Results: Dose escalation was performed in 34 patients over 5 DCs to a dose per fraction of 2.48 Gy. No differences were found in acute toxicity between the different DCs, but a significant increase in late lung toxicity in DC IV, using a fraction size of 2.36 Gy, necessitated a halt in further dose escalation with the MTD being defined as 2.24 Gy per fraction. The overall incidence of acute $\geqslant$grade 3 esophageal and pulmonary toxicity is 24% and 3% respectively. Overall late lung toxicity was 21%, but an acceptable 13% in DC I-III. Local response rate was 61% on computed tomography.
Conclusion: The use of helical tomotherapy to 67.2 Gy with concurrent cisplatin/docetaxel is feasible and resulted in acceptable toxicity. A full phase II study has been initiated to establish the true local response rate at the MTD of 2.24 Gy per fraction.

9102 POSTER

Toxicity and outcome results of a class solution with moderately hypofractionated radiotherapy in inoperable stage III non-small cell lung cancer using helical tomotherapy

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Purpose: To assess feasibility, toxicity and local control of a class solution protocol of hypofractionated tomotherapy in stage III, inoperable, locally advanced non small cell lung cancer (LANSCLC) patients.
Patients and Methods: Eligible patients were treated according to a uniform class solution (70.5 Gy in 30 fractions) with fixed constraints and priorities using helical tomotherapy (TT). Toxicity monitoring was performed using the RTOG criteria and the NCI CTCAE version 3.0. Pulmonary function tests (PFT) were measured at start and repeated at three months after treatment.
Results: Our class solution resulted in a deliverable plan in all 40 consecutive patients. Acute grade 3 lung toxicity was seen in 10% of patients. Two patients died during acute follow-up with pulmonary toxicity. Correlations were found between changes in PFT and mean lung dose (MLD) or the lung volume receiving 20 Gy (V_{20}). The correlation was strongest for lung diffusion capacity for carbon monoxide (DLCO). A V_{20} of >27% and >32% were predictive for grade 2 and 3 acute lung toxicity respectively ($p < 0.05$). Late grade 3 toxicity was exclusively pulmonary, with an incidence of 16%. Overall grade 3 lung toxicity correlated with a MLD >18 Gy and a median lung dose of > 15 Gy ($p < 0.05$). Median survival was 17 months and the 1y/2y local progression-free survival (LPFS) were 66% and 50% respectively.
Conclusion: The current class solution using hypofractionated TT in patients with LANSCLC is feasible. Toxicity was acceptable and in line with other reports on intensity-modulated radiotherapy. The LPFS was encouraging considering the unselected population.

9103 POSTER

The radioprotective effect of dimethyl sulfoxide in radiation induced acute pulmonary injury: detection by Tc99m-DTPA transalveolar clearance scintigraphy and histopathology

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Purpose: to investigate if radical scavenger and antiapoptotic agent dimethyl sulfoxide can prevent radiation-induced pulmonary injury by Tc^{99m}-DTPA transalveolar clearance scintigraphy, histopathologic assessment, and by TUNEL staining in an animal model.
Material and Method: Twenty white New-Zealand rabbits were grouped as: 1) control (CONT), 2) radiation alone (RT), 3) dimethyl sulfoxide plus radiation (DMSO+RT), and 4) dimethyl sulfoxide, alone (DMSO). Right hemithoraxes of the RT and DMSO+RT groups were irradiated with a single dose of 20 Gy by a Co^{60} treatment unit. Dimethyl sulfoxide (4.5 gr/kg) was given i.p. 30 minutes before irradiation. The Tc^{99m}-DTPA transalveolar clearance scintigraphy was performed on 14^{th} day after irradiation. The rabbits were sacrificed on 15^{th} day and lungs were removed for histopathologic evaluation. Evaluation was performed for the presence of peribronchial inflammatory cell infiltration (PIHI), alveolar septal infiltration (ASI), alveolar exudate (AEX), alveolar edema (AED) interstitial fibrosis (IF), and necrosis formation (NEC) by using a 4-point scale. Apoptotic cells were assessed by TUNEL staining. The reactivity of TUNEL positive cells is scored by 5-point scale.
Results: Administration of dimethyl sulfoxide prior to irradiation caused a marked prolongation in the transalveolar clearance rate of DTPA through the alveolocapillary membrane ($p = 0.028$). In addition, dimethyl sulfoxide administration prior to irradiation revealed better scores for pulmonary parenchyma in histopathologic evaluation compared to radiation alone group. Dimethyl sulfoxide given prior to irradiation markedly decreased the severity of alveolar exudate ($p = 0.042$). TUNEL staining scores of the apoptotic cells in the DMSO administered group prior to irradiation were better than radiation alone group at a statistically significant level ($p = 0.018$).
Conclusion: The results of our study suggest that dimethyl sulfoxide appears to be a protective agent against radiation-induced lung injury. Additional work is needed to better identify the effectiveness of dimethyl sulfoxide as radioprotective agent in radiation associated lung injury.

9104 POSTER

Randomized phase III study of mitomycin/vindesine/cisplatin (MVP) versus weekly irinotecan/carboplatin (IC) or weekly paclitaxel/carboplatin (PC) with concurrent thoracic radiotherapy (CTR) for patients (pts) with unresectable stage III non-small cell lung cancer (NSCLC): West Japan Thoracic Oncology Group (WJTOG) 0105

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Background: Concurrent chemoradiotherapy has become standard treatment of unresectable stage III NSCLC. However, the optimal regimen of concurrent chemoradiotherapy including radiation dose, schedule and chemotherapeutic agents has not been defined. We conducted a