19 patients had squamous carcinoma, 3 patients had large cell carcinoma and 12 had unclassfied. Complete responses (CR) were in 2 (3.7%) patients and partial responses (PR) in 26 (48%) patients. The overall response rate was 52% (95% CI, 37−65%) and the median response duration was 5 (range, 1 to 12.7) months. The median progression-free survival was 10.5 (range, 1.4 to 19.5) months. The median overall survival for all patients was 14.8 (range, 1.4 to 23.8) months.
During a total 253 cycles, anemia greater than CTC grade 2 occurred in 51 cycles (20%), leukopenia occurred in 22 cycles (8.7%) and thrombocytopenia occurred in 19 cycles (7.5%). Non-hematologic toxicities were minor and easily controlled.
Conclusion: The combination chemotherapy of docetaxel and carboplatin has moderate efficacy with acceptable toxicities in patients with advanced NSCLC.

6621 POSTER

A bi-weekly administration of gemcitabine and docetaxel in patients with non-small cell lung cancer

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Background: Combination of gemcitabine and docetaxel (GEM/DOC) has shown a favorable activity with its response rate of 34−37.5%, similar to that of cisplatin and docetaxel in chemotherapy-naive patients with stage IIIb or IV non-small cell lung cancer (NSCLC). However, neutropenia and pulmonary toxicities were related to the combination chemotherapy. Especially relatively high rate of pulmonary toxicities have been identified in monthly or weekly administration setting of both combination.
Purpose: We evaluated the feasibility and efficacy of biweekly GEM/DOC chemotherapy in patients with NSCLC.
Patients and Methods: Forty-four patients with post-operative recurrences and eighteen patients with unresectable advanced non-small cell lung cancer were enrolled in this study. Those patients received 1000 mg/m^2 of GEM and 30 mg/m^2 of DOC bi-weekly, q = 2 weeks. Response rate, toxicities, and completion rate are evaluated after 4 cycles. Those patients were basically treated on outpatient basis.
Results: A total of 62 patients were treated with combination of GEM/DOC. Patients characteristics were as follows; recurrent/unresectable: 44/18; male/female: 38/24; median age: 66.1 (range 32−80); performance status 0/1/2: 41/19/2; adeno/squamous/large: 45/15/2; chemo naive/previously treated: 24/38.
Response rate was 20.7% (CR 3, PR 9, SD 34, PD 12, and NE 4). Response rates by tumor pathological type were 25% (11/44) with adenocarcinoma and 8.3% (1/12) with squamous cell carcinoma. Over grade 3 leucopenia occurred in 17.7% (11/62), neutropenia in 32.3% (20/62), skin toxicities in 3.2% (2/62), and pulmonary toxicities in 3.2% (2/62). Treatment completion rate was 93.5% (58/62). The reasons for treatment discontinuation were pneumonia, skin rush, and angiodynia.
Conclusion: GEM/ DOC regimen is a feasible and efficacious regimen against advanced and/or recurrent NSCLC. Biweekly administration of GEM/DOC may decrease hematological toxicities and be well-tolerated regimen. In addition, the rate of pulmonary toxicities in biweekly GEM/DOC may be less compared with other scheduled combination.

6622 POSTER

Chemokine receptors CXCR4 and CX3CR1 in non-small cell lung cancer (NSCLC): pattern of expression and correlation with brain metastases (BM)

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Background: The expression of chemokine receptors has been correlated to the organ-specific metastatic pattern of several tumors, including lung cancer. Aim of this study was to evaluate CXCR4 and CX3CR1 expression in NSCLC and its relation with the occurrence of BM.
Materials and Methods: CXCR4 and CX3CR1 expression was detected by immunohistochemistry in primary tumor specimens of 13 patients (pts) with BM from NSCLC (group A), and in a matched control group of 9 pts with NSCLC and no relapse (group B). Matched group was composed of pts with high-risk of developing BM (stage IIIA-IIIB NSCLC) and adequate follow-up. To evaluate the chemokine staining the percentage of positive neoplastic cells and the intensity of immunoreactivity were considered.
Results: High CX3CR1 expression was detected in 5 (38%) and 4 (44%) cases in group A and B, respectively. The respective figures for CXCR4 were 0 and 5 (56%) in the two groups. No significant difference was observed in the expression of CX3CR1 in patients with and without BM; on the contrary low or no expression of CXCR4 was correlated to the occurrence of BM (p=.005). Interestingly, all pts (n = 3) with high CX3CR1 but negative CXCR4 expression developed BM, and all pts (n = 4) with high CX3CR1 and CXCR4 expression showed no relapse.
Conclusions: These preliminary observations suggest a possible role of chemokine pathway in the development of BM in NSCLC pts. Further studies in NSCLC are warranted to identify pts at high-risk of brain recurrence.

6623 POSTER

Renal safety of prolonged administration of pemetrexed (P)/platinum treatment for advanced malignant mesothelioma

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Background: Maligant mesothelioma is a very rare and aggressive neoplasm of the pleura or pertioneum with a short life expectancy. Standard care of MM is P + cisplatinum (DDP). Best duration of chemotherapy (ctx) for MM remains undetermined. The feasibility of maintenance with P/DDP in patients responding to induction chemotherapy has not been studied. A major obstacle to sustained P/DDP for MM is renal safety beside neurotoxicity. At present, there are no prospective trials with data regarding renal safety in pts receiving >6 cycles of P/DDP in MM.
Methods: We evaluated long term outcome of renal function of P(500 mg/m^2)/DDP(75 mg/m^2) for MM prospectively. Ctx on d1 was repeated on d22 until disease progression or toxicity. Pts with impairment of renal function (Creatinine-Clearance <60 ml/min) switched to P/carboplatinum (CP) AUC 5 for further ctx. P ctx was stopped if Creatinine-Clearance (CrCl) <45 ml/min. Routine folinic acid and vit B12 was administered to prevent AE. Study endpoint was long term renal function for sustained therapy of P/DDP followed by P/CP and/or P-mono.
Results: Between 12/02 and 07/06 86 consecutive pts were treated. Staging procedures revealed abdominal MM (AbM) in 19 pts and pleural MM in another 67. Five pts did not receive ctx. First-line ctx was P/DDP in 66 pts given a mean of 4.9 cycles (range 1−11) for a mean of 120 d (21–397 d) and a mean of 138 mg DDP/cycle. 28 pts received CP/P for maintanance sequentially up to a max of 27 cycles (mean 6.4). A change from P/DDP to P/CP was necessary due to a worsening renal function in all of those pts. Mean S-creatinine/CrCl prior to DDP ctx was 0.87 mg/dl (SD 0.17)/96.0 ml/min (SD 26) and 1.01 mg/dl (SD 0.29)/73.4 ml/min (SD 22) at the end of P/DDP. Median given CP dose was 425 mg (range 175–725 mg). Pts subsequently receiving P/CP had a S-crea of 1.16 mg/dl (CrCl 71.4 ml/min) prior to ctx that did not change during P/CP (1.13 mg/dl and CrCl 69.8 ml/min). 13 pts received P-mono with a mean of 8 cycles (1−26) subsequently. Renal function showed a S-crea(CrCl) of 1.13 mg/dl (71.2 ml/min) prior and 1.11 mg/dl (70.8 ml/min) at the end of P ctx.
Conclusions: Long term maintenance P/DDP of MM is limited by renal impairment due to DDP, while subsequent P/CP or P alone was feasible and not associated with a further deterioration of renal function. Further trials with sustained P/CP or P ctx for MM are warranted to evaluate the efficacy for advanced MM.

6624 POSTER

A plan study on the Iso-NTCP dose escalation of the respiratory-gated intensity-modulated radiation therapy for non-small cell lung cancer

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Background: It has been reported that the local control rate of non-small cell lung cancer is still low in spite of 3D-CRT. It is necessary to escalate the radiation dose and reduce the overall treatment time for improving the treatment results. A plan study was performed to evaluate the dosimetric benefits of the respiratory-gated intensity-modulated radiation therapy (IMRT) for non-small cell lung cancer.
Materials and Methods: Eight lung cancer patients were enrolled who received simulation four-dimensional CT (4DCT) scans. CT data was acquired on a multi-slice spiral CT scanner (Brilliance Big Bore, Philips) with a respiratory gating system (Real-time Position Management, Varian Medial Systems). Two patients were scanned under audio-guidance ('breathe in' and 'breathe out') and the others under free breathing. Planning target volume (PTV) was defined as gross tumor volume plus 5 mm margin. 3DCRT and IMRT plan were performed on Pinnacle ver 7.6c (Philips Radiation Oncology Systems, USA). Three to five coplanar and

noncoplanar 6 MV photon beams were used for 3DCRT plan. 70 Gy at 2 Gy per fraction was prescribed to 90% of PTV. Five to seven non-opposing 6 MV photon beams were used for IMRT plans. Seventy segments were assigned before optimization. Dosimetric parameters including EUD, maximum and minimum dose, heterogeneity index, mean lung dose, NTCP for lung and normal lung volume% were compared between 3DCRT and IMRT plan. In addition, iso-NTCP dose escalation was conducted by two ways (increasing the fraction number or the fraction size) while considering the accelerated repopulation and overall treatment time.
Results: PTV volume ranged from 185–618 cm^3. By optimization objectives, IMRT and 3DCRT plan showed no difference for the target coverage (EUD_PTV; 69.8 Gy for IMRT and 69.5 Gy for 3DCRT, $p = 0.667$)). But, IMRT plan showed lower NTCP for lung and it was statistically significant ($p = 0.019$). Mean TCP for 3DCRT and IMRT was 32% and 29% respectively. By increasing the fraction number and fraction size, mean TCP was elevated to 47% and 81% and these were statistically significant ($p < 0.001$).
Conclusions: It was revealed that the respiratory-gated IMRT plan could increase the therapeutic ratio of NSCLC, especially by the reduction of lung NTCP. Further studies are going to be performed about the effect of the intrafractional uncertainties on the IMRT plan and the feasibility of the gated IMRT delivery.

6625 POSTER

Gefitinib (G) treatment outcome after progression on erlotinib (E) in patients with advanced non-small-cell lung cancer (NSCLC)

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Background: Two case reports describe a response to E after failure of G (Garfield DH, J Clin Oncol 2005) or to G after failure of E (Choong NW et al„ Nat Clin Pract Oncol 2006) in patients (pts) with advanced NSCLC. Otherwise, a limited experience in 5 pts suggests that E is not effective in pts progressing on G (Viswanathan A et al„ Lung Cancer 2005). Aim of this study was the evaluation of response and time to progression (TTP) in advanced NSCLC pts treated with G after failure of E.
Materials: Pts received G 250 mg/day after disease progression (PD) with E 150 mg/day. Pts accrual was stopped on August 2006 after the approval of E for use in Italy and the consequent closure of the G compassionate-use program.
Results: From May 2005 to August 2006, 15 pts were enrolled. Median age 65 years (50−85); males = 14 pts (93%); never/former smokers = 4/10 pts (26/67%); adenocarcinoma = 10 pts (67%); PS 0/1 = 5/10 pts (33/67%); in 2 pts (13%) E was administered as first-line therapy, 8 pts (53%) received 2 prior lines of chemotherapy (CT) and 3 pts (20%) received CT between E and G. One patient (7%) had a partial response (PR) and 5 pts (33%) had disease stabilization (SD) with E; with G no PR and 6 SD (40%) were obtained. Five out of 6 RP/SD pts with E, had SD with G; 8 out of 9 PD pts with E, had PD with G; 1 SD patient with E, progressed with G and 1 vice versa. TTP in RP/SD pts was 7.2 and 3.4 months for E and G respectively; in PD pts TTP was 1.7 and 1.6 for E and G respectively.
Conclusions: Our data suggest that there is a benefit with G in pts who had RP/SD with E and that is associated with a good TTP. Conversely G is not recommended in pts who immediately progressed after E. An analysis of the role of mutational status and other biomarkers in predicting clinical outcome is currently underway.

Melanoma

Oral presentations (Wed, 26 Sep, 09.00−10.45) **Melanoma**

7000 ORAL

A phase I/II study to determine the feasibility and efficacy of the triple combination of Oblimersen (OBL), Abraxane (ABX), and Temozolomide (TMZ) in metastatic melanoma

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Background: OBL is a bcl-2 antisense oligonucleotide, which has shown efficacy on multiple endpoints in combination with DTIC as compared to DTIC alone in a large randomized study: response rate (RR) 13.5% vs. 7.5% ($p < .01$), median progression free survival (PFS) 2.6 vs. 1.6 months ($p < .001$), median overall survival 9 vs 7.8 months ($p = 0.077$). Patients selected on the basis of normal baseline LDH have a greater benefit. Notably, OBL increases the rate of durable responses. Relative to DTIC, combination therapies generally improve RR only. The addition of OBL to chemotherapy may have an impact on survival. TMZ is an oral drug with a similar mechanism of action as DTIC. The combination of OBL and TMZ+ABX has been shown to be synergistic in preclinical models.
Methods: Two cohorts of 14 cases are being enrolled sequentially. A series of 14 consecutive failures to respond would be considered insufficent activity (RR < 20%, $p < 0.05$). Treatment is as follows: Cohort 1: OBL 7 mg/kg days 1−7 and 22−29 as a continuous infusion, TMZ 75 mg/m^2 p.o. qd days 1−42, ABX 175 mg/m^2 on day 7 and 29. Cohort 2 will have ABX dose escalated to 260 mg/m^2. Eligibility criteria are: metastatic melanoma with baseline LDH <1.1 ULN with no previous chemotherapy, measurable disease by RECIST criteria. Feasibility criterion for each cohort is no observed severe neutropenia (>7 d) in 14 consecutive cases or more than 33% of the patients experience a Gr 3/4 non-hematologic toxicity. RR and PFS at 6 months will be assessed.
Results: Of 5 subjects treated in Cohort 1, one patient achieved a partial response and two, stable disease (RECIST). Pre & post tumor biopsies and PBMCs are being monitored for bcl-2 pathway and proliferation markers. Pharmacokinetics are being accessed for OBL and ABX. Shed cryptic epitopes will be measured serially and correlated with clinical responses.
Conclusion: This regimen includes 3 drugs combined at fully active doses. It will establish the tolerance profile and give a risk-benefit assessment based on tolerability and observed response rate to determine which dose level is most promising.

7001 ORAL

Long-term outcome of 403 patients treated with ruthenium brachytherapy for choroidal melanoma

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Background: Eye sparing treatment using ruthenium-106 plaque brachytherapy has replaced enucleation as standard treatment for intermediate size choroidal melanoma, as it provides equal survival rates, while preserving cosmetic appearance, useful visual function and quality of life. Long-term results were analyzed to evaluate local control (LC), overall (OS) and recurrence-free survival (RFS), complication rates and visual acuity after treatment, and identify prognostic factors.
Materials and Methods: Outcome data of 430 consecutive patients treated between 1993 and 2004 were analyzed. Brachytherapy doses were specified at the scleral surface and ranged from 400 to 600 Gy with TTT, and from 600 to 800 Gy without TTT, depending on the apical height and location of the tumour. Doses were calculated at the sclera and at the tumour apex, and corrected for dose rate. Tumours up to 8 mm apical height and 16 mm basal diameter were treated. Initial visual acuity in the affected eye was >0.50 in 70% and >0.10 in 95%.
Results: At median follow-up of 54 months, an excellent 5-year actuarial LC of 96% was found. OS and RFS rates were 78% and 81% at 5 years. The 5-year rate of distant metastases was 16%. Cosmetic and functional (visual acuity >0.10) eye preservation was obtained in 96% and 62%, respectively. Significant prognostic factors for LC were central or juxtapapillary location of the tumour, and initial visual acuity. Both factors remained significant in the multivariate analyses (MV). For RFS, age, apical height, basal diameter, central or juxtapapillary location and dose to the apex were significant prognostic factors in univariate analyses. Basal diameter and central or juxtapapillary location remained significant in MV. Radiation side effects such as retinopathy, opticopathy and maculopathy were frequent and gradually increased over time, amounting to 2- and 5-year rates of 38% and 64%. Eventually, 17 patients underwent enucleation; 10 for local recurrence, and 7 for severe treatment complications.
Conclusions: Ruthenium-106 plaque brachytherapy is a very effective and safe treatment for choroidal melanoma with excellent local control and cosmetic and functional eye preservation rates. Central or juxtapapillary location and basal diameter of the tumour are significant prognostic factors for RFS.