prognostic effect. CEA and PLUNC expression provides a tool for selecting high-risk p considered for adjuvant therapies

6544 POSTER

Individualized high-dose continuous hyperfractionated accelerated radiotherapy (HI-chart) of non-small cell lung cancer (NSCLC) based on normal tissue constraints: a prospective clinical trial

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Background: Local recurrence is a major problem after (chemo-)radiation for NSCLC. We hypothesized that for each individual patient the highest therapeutic ratio could be achieved by increasing the total tumor dose (TTD) to the limits of normal tissues, delivered within 5 weeks. In a theoretical model this resulted in an increase in tumor control probability from approximately 5% for a classical scheme (60 Gy in 6 weeks) to 25% for the study scheme. Here, we report the first results of a prospective clinical trial.
Materials and Methods: Twenty-nine patients with medically inoperable (stage I, n = 2) or locally advanced NSCLC (stage III, n = 27), in a good general condition (WHO-PS 0−1) and with a reasonable lung function (FEV1 >50% of predicted) were included. Most patients (25/29) received induction chemotherapy. All patients were irradiated using an individualized prescribed TTD, based on normal tissue constraints (mean lung dose 19 Gy, maximal spinal cord dose 54 Gy, no esophageal constraints) up to a maximal TTD of 79.2 Gy in 1.8 Gy fractions, twice daily. Toxicity was scored using the CTCAE-criteria. A FDG-PET-CT scan (n = 27) was performed to evaluate (metabolic) response 70 days after radiotherapy according to EORTC-criteria (PET) and RECIST-criteria (CT). The Kaplan-Meier method was used to compute overall survival.
Results: The mean delivered dose was 62.7 Gy (range 46.8−79.2 Gy), equivalent to a biological dose of approximately 80 Gy. Most patients experienced mild acute toxicity, while only 2 patients (7%) developed acute grade 3 toxicity (n = 1 dysphagia, n = 1 cough). Concerning late toxicity, 93% of patients (n = 25) showed radiographic changes (75% in <25% and 18% in >25% of the lungs), while 12 out of 28 patients (43%) had clinical symptoms (⩾gr 2 pneumonitis). One patient (3%) died 51 days after radiotherapy due to pneumonitis (treatment related mortality). The post-radiotherapy PET-CT showed in 18 patients a metabolic response (41% complete metabolic response, 26% partial metabolic response), whereas only in 9 patients (33%) a response was seen on CT (p = 0.01). Seventeen patients (59%) showed progressive disease, consisting of loco-regional progression (n = 6), metastases (n = 6) or a combination of both (n = 5). With a median FU of 16 months the median overall survival was 19.6 months and a 1-yr and 2-yr survival of resp. 59% and 45%.
Conclusions: Personalized HI-CHART radiation prescription based on normal tissue constraints is tolerable and initial results are promising.

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Clinical significance of serum TERTmRNA detection in lung cancer patients

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Background: Using a newly developed assay of telomerase reverse transcriptase (hTERT) mRNA in serum by real-time RT-PCR, we previously reported this assay to be superior to other tumor markers for hepatoma. In this study, we attempted to clarify its clinical significance as a biomarker for lung cancer.
Materials: In 89 patients with lung cancer and 27 individuals without it, we measured serum hTERT mRNA and epidermal growth factor receptor (EGFR) mRNA levels, using a quantitative one-step real-time RT-PCR assay. We examined its sensitivity and specificity in lung cancer diagnosis, its clinical significance in comparison with other tumor markers, and its correlation with the clinical parameters using multivariate analyses and correlation relative test.
Results: The copy number of serum hTERT mRNA was independently correlated with tumor size, tumor number, the presence of metastasis and recurrence, and smoking ($P < 0.05$, each). EGFR mRNA correlated with tumor size, tumor number, recurrence, and clinical stage ($P < 0.05$, each). The sensitivity/specificity in lung cancer diagnosis were 71.8%/72.5% for hTERT mRNA, 60.8%/62.5% for EGFR mRNA, respectively. hTERT mRNA was superior to other tumor markers in lung cancer diagnosis. Both mRNAs in serum were significantly correlated with those in lung cancer tissues ($P < 0.05$ for hTERT, $P < 0.05$ for EGFR, respectively). The copy number of hTERT mRNA significantly decreased after the surgical treatment.
Conclusions: The combination of both mRNAs improved the sensitivity/specificity to 82.8%/77.7%, thus suggesting that hTERT mRNA, especially when combining with EGFR mRNA, is a novel and excellent biomarker for pulmonary malignancies to diagnose and assess the clinical stage and effects of treatments.

6546 POSTER

Postoperative 3D conformal radiation therapy with dose-volume histogram assessment in non small-cell lung cancer

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Background: Despite many randomized trials, the indication of postoperative radiation therapy (PORT) in non small cell lung cancer (NSCLC) is controversial. Involved-field conformal (3D) RT has never been studied prospectively. In this study, we aim to assess the outcome of patients treated with involved-field 3D PORT with or without chemotherapy in locally advanced NSCLC.
Materials and Methods: From 1990 to 2006, data from 75 consecutive patients treated with curative surgery and PORT for NSCLC were retrospectively analyzed. Male to female ratio was 57/18, and median age was 58 years (38−76). There were 5 patients with stage I, 22 with stage II, and 48 with stage III disease. Pneumonectomy or lobectomy was realized in 24 and 51 patients, respectively. Mediastinal lymphadenectomy was performed in all patients. PORT indications were positive margins and/or positive mediastinal lymph nodes. Cisplatinbased chemotherapy was given in 15 patients. All patients had 3D conformal planning. Median RT dose was 60 Gy using at least 6-MV photons in 6 weeks, and CTV included bronchial stump and only positive nodal areas. Dose-volume histograms (DVH) assessing the pulmonary volume receiving 20 Gy (V20 Gy) were used in all patients.
Results: Compliance to PORT was 100%. In a median follow-up period of 55 months, 26 (35%) patients are alive without disease. Median overall survival time was 24 months, with survival rate of 35% at 5 years. The 5-year locoregional control and distant disease-free rates were 80% and 57%, respectively. Patients treated with pneumonectomy and those treated with at least 60-Gy PORT had better outcome. Grade 3 or more CTC v3.0 toxicity was observed only in 4 (5%) patients. No lethal toxicity was observed.
Conclusions: We conclude that involved-field 3D conformal 60-Gy PORT tailored with DVH V20 Gy assessment improves locoregional control without increasing lethal toxicity. Prospective studies using the above-mentioned criteria are warranted.

6547 POSTER

SNS-595: Preliminary results of 2 phase 2 second line studies in lung cancer

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SNS-595 is a novel cell-cycle inhibitor that induces DNA damage responses, G2 arrest, and apoptosis. SNS-595 currently is being tested clinically in AML, ovarian cancer, and SCLC.