P3-194 Posters, Wednesday, Sept 5 – Thursday, Sept 6

The palliative effect of endobronchial brachytherapy for previously irradiated patients

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Background: To evaluate the palliative effect of endobronchial brachytherapy (EBB) for patients who previously received the external beam radiotherapy (EBRT).

Methods: From July 1992 to May 2003, 29 patients with recurrent or persistent non-small cell lung cancer (NSCLC) were treated with palliative EBB at our institute. EBB consisted of 3 fractions (once a week) of 5 Gy, delivered 1 cm from source using the high dose rate remote afterloader. The symptomatic response rates were assessed. And the factors, such as age, performance status, previous EBRT dose, elapsed time from EBRT to EBB, the extent of endobronchial tumor, and the degree of occlusion were compared between symptomatic responders and non-responders.

Results: Median age was 62 years (46~71 years). Eastern Cooperative Oncology Group (ECOG) performance scale 1, 2, 3 was 13, 15, 1 patient respectively. Total dose of previous EBRT was median 54 Gy (45~63 Gy) with daily dose of median 2.5 Gy (1.8~3 Gy). Elapsed time from EBRT to EBB was median 7 months (1~102 months). 22 patients complained of 2 or more symptoms caused by endobronchial tumor. Type of symptoms were cough (n=22), dyspnea (n=16), hemoptysis (n=11), obstructive pneumonia (n=3) and chest pain (n=1). The extent of tumor was to the distal trachea in 15 and to the main bronchus or lobar bronchus in 14 patients. 19 patients (66%) had nearly total (more than three quarter of the lumen) or total occlusion by tumor at first EBB. Median follow up was 6 months (1~34 months). Only 2 patients could not complete the scheduled treatment. The overall symptomatic response rates were 51% (27/53). Response rates as to the type of symptoms were 41% for cough, 50% for dyspnea, 82% for hemoptysis, and 33% for obstructive pneumonia. Of the type of symptoms, hemoptysis was better relieved than cough (Fisher's exact test, $p<0.05$). The median time to symptom relapse was 6 months (3~31 months). 17 (59%) patients (symptomatic responders) were relieved from all or part of symptoms after or during EBB and 12 (41%) patients (non-responders) were not relieved from their symptoms at all. The symptomatic responders had better performance status (ECOG 1) or more tumor extent to distal trachea than non-responders. And the difference was significant statistically (Fisher's exact test, $p<0.05$). Bronchopleural fistula was developed in 2 patients (7%) and one of them died of the complication.

Conclusions: The overall symptomatic response rates were 51% and the response maintained for 6 months. Palliative EBB, even though EBRT was given previously, could be effective especially if a patient has the symptom, such as hemoptysis caused by distal tracheal lesion.

P3-195 NSCLC: Radiation Posters, Wed, Sept 5 – Thurs, Sept 6

A phase ii study to determine the efficacy of Tarceva (Erlotinib Hydrochloride) with concurrent whole brain radiation therapy in patients with brain metastases from non-small cell lung cancer

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Purpose: Brain metastatic disease continues to be a leading cause of death in patients (pts) with non-small cell lung cancer (NSCLC). Despite treatment advances such as stereotactic radiosurgery, Motexafin Gadolinium and RSR-13, survival for pts with brain metastases remains largely unchanged. Encouraged by the synergistic priorities of tyrosine kinase inhibitors (TKI) and radiation, we developed a clinical trial of concurrent Tarceva (OSI Pharmaceuticals, Boulder CO) and WBRT for pts with NSCLC brain metastatic disease. We did not select for EGFR mutations as most pts did not undergo craniotomy.

Methods: This single institution phase II study was opened in February of 2006 with a goal of enrolling 33 pts with brain metastases from NSCLC. Pts were treated with Tarceva 150mg PO daily. On day seven of treatment external beam radiation was initiated using opposed lateral to deliver 3000cGy in ten fractions. Following radiation, pts remained on Tarceva until they had documentation of disease progression, developed significant toxicity or were started on systemic therapy. Dose reduction was allowed; however, all patients had to remain on Tarceva until completion of radiation to remain evaluable.

Results: For 10 pts enrolled thus far, all have completed Tarceva and WBRT. With a median follow-up of 8 months, 50% of the patients remain alive at time of analysis. One patient required dose reduction secondary to grade 2 rash. Two patients have experienced early grade three toxicity, including diarrhea and pruritus. One pt developed a late grade 3 neurocognitive toxicity at 8 months after treatment; this pt is the longest survivor at 12 months. At the time of analysis, 50% of patients remain alive; the median expected survival based on RPA (Recursive Partitioning Analysis) is 4.2 months, while the actuarial median survival for our pts thus far has been 6.3 months.

Discussion: Brain metastases from NSCLC continues to confer a very poor prognosis that has changed little over the last few decades. By combining the EGFR inhibitory mechanism of Tarceva along with concurrent radiation therapy we hope to improve progression free survival, while limiting neurocognitive impairment. Data from the first 10 pts show that concurrent Tarceva with WBRT is feasible, with a low frequency of early adverse events consistent with EGFR/TKI safety data. We noted one late toxicity of neurocognitive deficit; we will be monitoring for further late toxicities, compared to what has been reported for long-term survivors of WBRT. In terms of survival, these preliminary results appear encouraging in comparison with historical controls, with a median increase of 2.1 months. Accrual to the trial continues.