

## CARCINOEMBRYONIC ANTIGEN (CEA) IS A USEFUL PROGNOSTIC MARKER OF THE PNEUMONIC ADENOCARCINOMA (P-ADC), CASE STUDY.

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### KEYWORDS :

#### INTRODUCTION:

The CEA (carcinoembryonic antigen) blood levels are often increased in colorectal cancer and may be increased in other cancers including: breast, lung, pancreatic stomach, liver or ovarian cancer. In the Non-small lung cancer (NSCLC) patients, serum level of CEA was found to be a useful prognostic marker for either OS (overall survival), recurrence after surgery or/and progression free survival (PFS)<sup>1</sup>.

#### Case study:

77 year old female was pointed out chest abnormal shadow (Fig.1a) and was suspected Tuberculosis. There were some consolidation with air bronchogram and granular shadows in right lung on CT (computed tomography) (data not shown). Labo data shows normal range except high level of CEA 67.2 ng/ml. Other tumor marker of the lung cancer such as SCC, cyfra, proGRP were normal.

Bronchial wash from bronchofiber reveals cytology class IV and negative for Tuberculosis (Tb), Tb PCR (polymerase chain reaction), MAC (Mycobacterium avium complex)-PCR. Cytology of BAL (bronchoalveolar lavage) and sputum also showed nuclear atypia with without intracytoplasmic mucin (Fig.2).

Abdominal CT, bone scintigram and brain CT reveal no evidence of metastasis. (data not shown). In the result, the patient was diagnosed bronchioloalveolar carcinoma (BAC) so called pneumonic adenocarcinoma (P-ADC) T<sub>4</sub>N<sub>0</sub>M<sub>1</sub>, stage IV. She discharged from hospital by without anticancer therapy.

5 month later, she was admitted the hospital because of exertional dyspnea. Then CEA was elevated to 88.7 ng/ml. Blood gas (room air) was pH 7.406, pO<sub>2</sub> 68 Torr, pCO<sub>2</sub> 35.6 Torr, HCO<sub>3</sub> 22.5 mEq/L. Contrast enhance CT shows extended consolidation shadows without angiogram sign and mediastinal, hilar lymphnode swelling and no pleural effusion (data not shown). Brain MRI and bone scintigram show no evidence of metastasis. Hyperoxygenation with 1 liter/min improved SpO<sub>2</sub> to 98% and exertional dyspnea was disappeared, and discharged from hospital with HOT (hyperoxygenation therapy) at home.

One year later, she was admitted to the hospital because of respiratory symptom including cough and sputum getting worse. Chest X-p revealed extended shadow in right lung field (Fig.1-b). CEA was elevated to 263.9 ng/ml.

Then therapy with EGFR TKI (tyrosine kinase inhibitor) Gefitinib (250mg, 1T/day) had been started. The shadows of the right lung were gradually decreased and respiratory symptom were accordingly improved. No particular side effect was found such as interstitial pneumonia, however, hives and diarrhea were appeared. Thereafter, clinical symptom and Chest X-ray showed improved (Fig.1-c) and stable about one year (PFS) with elevated CEA 863.8~1013.2 ng/ml. She was dead two years and ten months (OS) after initial diagnosis.

**DISCUSSION:** P-ADC (former called Bronchioloalveolar carcinoma, BAC) was known to be classified into non-mucinous and mucinous type and was now called Invasive adenocarcinoma with lepidic predominant (former nonmucinous BAC pattern, with >5mm invasion)<sup>2,3</sup>. Non-mucinous type of lung adenocarcinoma is well associated with EGFR mutation, and mucinous type with K-ras

mutation<sup>4</sup>. EGFR-TKI was temporally effective in this case. EGFR-TKI is said to be effective for lung adenocarcinoma with non-smoker, female, Asian people<sup>5</sup>. CT features of the non-mucinous P-ADC are non-specific. This case was thought to be non-mucinous type P-ADC by bronchial lavage, CT findings, and result of EGFR-TKI effective. However, histopathologic examination was not done, precise pathology was not known. Further research was desirable.

Clinical symptom and chest X-ray was stable and no change after therapy with EGFR-TKI, however, CEA was gradually elevated to high level. This means disease were progressive, contrary to the stable disease on symptom and chest X-p.

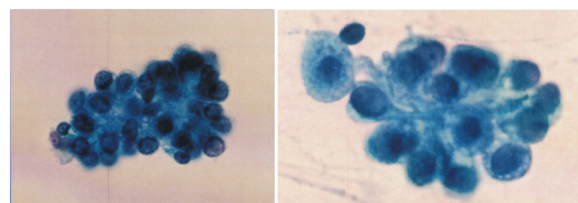
In conclusion, CEA is a useful of prognostic marker of P-ADC.



a  
FIG.1

b

c



Bronchoalveolar lavage (BAL)

Sputum

Fig.2

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