

Adrenal metastasis represents the worst prognosis for non-small-cell lung cancer patients

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Background/Aims: Common sites of extra-thoracic metastasis for non-small cell lung cancer (NSCLC) are the bone, brain, liver, adrenal glands, and abdominal lymph nodes. The adrenal gland is an extra-thoracic metastatic organ that can be easily identified on a chest computed tomography (CT) scan. In this study, we investigated the prognosis of adrenal metastases compared to that of metastasis to other extra-thoracic organs in patients with non-small-cell lung cancer.

Methods: Patients with histologically confirmed NSCLC who were diagnosed between January 2005 and December 2018 at Inha University Hospital were initially considered in this study. All patients were diagnosed with stage IV at the time of diagnosis and treated with systemic chemotherapy. Adrenal metastasis was diagnosed based on chest CT and positron emission tomography (PET) scans performed at the time of diagnosis.

Results: Among 902 patients who finally included in the study, 122 patients had adrenal metastasis. Metastasis in adrenal, bone, liver, and abdominal lymph nodes were significantly associated with worse overall survival. Among these sites, patients with adrenal metastasis showed shortest median survival time (4.9 months vs. 12.2 months, $p < 0.001$) and relatively large hazard ratio (2.11 and 95% confidence interval [CI] = 1.70-2.63, $p < 0.001$ in univariate analysis; 1.74 and 1.38-2.18, $p < 0.001$ in multivariate analysis). In addition, in patients with metastasis in a single organ, only adrenal metastasis was associated with overall survival (6.6 months vs. 14.3 months, $p = 0.013$) (Figure 1).

Conclusions: The results of this study showed that adrenal metastasis represented that worst prognosis among distant metastatic organs. Even if additional tests such as brain magnetic resonance imaging or PET were not performed yet in lung cancer patients, clinicians can predict a poor prognosis only based on the findings of adrenal metastases showed on chest CT.

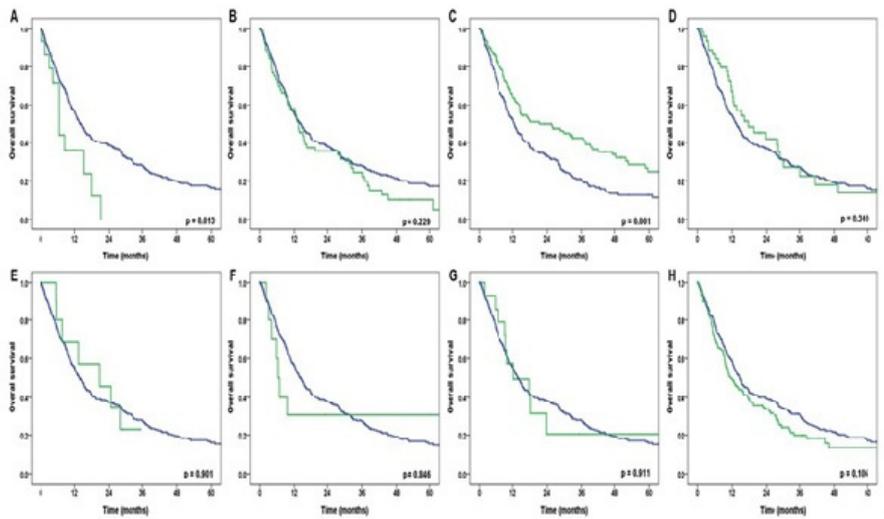


Figure 1. Overall survival of non-small-cell lung cancer patients with metastasis in a single organ. (A) Adrenal gland (B) Bone (C) Lung (D) Liver (E) Abdominal lymph nodes (F) Brain (G) Pleura (H) Adipose tissue