

Results of Neoadjuvant concurrent chemoradiation followed by surgery in Stage III NSCLC

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Background/Aims: The management of stage III non-small cell lung cancer (NSCLC) is diverse and neoadjuvant treatment including chemotherapy and/or radiation followed by surgery is one of the options. Major pathologic response (MPR), defined as residual viable tumor of less than or equal to 10%, currently serves as a surrogate endpoint for survival for patients with resectable NSCLC after neoadjuvant therapy. In this study, we evaluated the MPR rate of neoadjuvant concurrent chemoradiation therapy.

Methods: We retrospectively reviewed stage III NSCLC patients treated with neoadjuvant concurrent chemoradiotherapy (CCRT) from May 2015 to April 2021 in Yonsei Cancer Center, Seoul, Korea. Tissue specimens of patients who underwent surgery were evaluated by pathologists to determine MPR and pCR (defined as 0% viable tumor cells in resected lung and lymph nodes). Event-free survival (EFS) and overall survival (OS) were obtained for all patients, and five-year EFS and OS were estimated using Kaplan-Meier methods. We compared EFS and OS between patients who achieved MPR or pCR and those who did not.

Results: Among 96 patients who completed neoadjuvant chemoradiotherapy, 24 patients did not undergo surgical resection. Of 72 eligible patients, MPR and pCR were achieved in 39 patients (54.2%) and 17 patients (23.6%), respectively. With a median follow-up of 50.3 months, median EFS was 26.4 months [95% CI, 19.9-32.8] and median OS was not reached. When compared between patients with and without MPR, median EFS was 54.7 months and 22.7 months, respectively ($p=0.11$); the median OS was not reached in both groups. For patients who achieved pCR and those who did not, median EFS was 31.1 months versus 26.4 months ($p=0.93$), and median OS was 54.7 months versus not reached, respectively.

Conclusions: There was a trend in favor of longer EFS in MPR-positive patients but no significant association between MPR/pCR and survival was found in this study. However, the five-year overall survival and event-free survival rates of 37.1% and 55.6% demonstrate the efficacy of neoadjuvant CCRT with subsequent surgery treatment compared to historical outcomes; making it a feasible approach for stage III NSCLC patients.