Background: More recently, the novel conception of neoadjuvant immunotherapy has generated interest among surgeons worldwide, especially the lack of experience involving surgical treatment for the neoadjuvant immunotherapy population. To address this, the current study was conducted to report the analysis of surgical perspective outcome data after neoadjuvant immunotherapy followed by surgery for resectable non-small-cell lung cancer (NSCLC).

Methods: The current retrospective study was conducted at Shanghai Chest Hospital, an ultra-high-volume tertiary thoracic surgery center in Shanghai, China. Patients with NSCLC who underwent neoadjuvant immunotherapy or chemo-immunotherapy were retrospectively collected between September 2018 and April 2020. Demographic data, pathologic and clinical features, therapeutic regimens, and outcome data of all included patients were collected by respective chart review. Operative details, information of neoadjuvant therapy, were also abstracted.

Results: Of the 14901 patients underwent lung resection in our institute during the study period, 31 patients received neoadjuvant immunotherapy or chemo-immunotherapy for at least 2 courses were included in the study. The patients' median age was 61 years. 29 of the patients were males while 2 were females. Patients received a median of 3 doses before resection. The median duration from final treatment to surgery was 34 days. After neoadjuvant treatment, post-treatment computed tomography scan showed that 24 patients had partial response. 12 of 31 patients had a major pathologic response, 5 pathologic downstaging. Three patients had no residual viable tumor. A positive surgical margin was identified in 7 cases. One or more postoperative complications occurred in 18 of all 31 patients. 26 of these 31 patients underwent next-generation sequencing (NGS) before surgery in total. Among them, 2 patients (7.7%) were detected STK11 mutations. None of these 2 individuals had an advanced stage of final pathological examination.

Conclusions: Pulmonary resection after neoadjuvant immunotherapy or chemo-immunotherapy for resectable NSCLC appears to be safe with low operative mortality and morbidity rate in the current population.

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