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Clinical Characteristics and Surgical Outcomes of Patients Receiving Perioperative Pembrolizumab in KEYNOTE-671

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ABSTRACT

BACKGROUND The phase 3 KEYNOTE-671 study (NCT03425643) demonstrated significantly improved event-free survival (EFS) and overall survival with neoadjuvant pembrolizumab plus chemotherapy followed by surgery and adjuvant pembrolizumab vs neoadjuvant chemotherapy and surgery for early-stage non-small cell lung cancer (NSCLC). We describe participant characteristics, surgical outcomes, and EFS in surgically relevant subgroups.

METHODS Participants with untreated, resectable, stage II-IIIB (N2) NSCLC were randomized 1:1 to neoadjuvant pembrolizumab 200 mg or placebo plus cisplatin-based chemotherapy every 3 weeks for 4 cycles, then surgery and adjuvant pembrolizumab or placebo for 13 cycles. Surgery was performed ≤20 weeks after first neoadjuvant dose (if 4 cycles of neoadjuvant therapy) or 4-8 weeks after last neoadjuvant dose (1-3 cycles); surgery beyond this was considered surgical delay. Adjuvant therapy began 4-12 weeks after surgery. EFS was assessed in the surgical population.

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RESULTS Of 397 participants randomized to pembrolizumab and 400 to placebo, 325 (82.1%) and 317 (79.4%), respectively, underwent surgery. At data cutoff (July 10, 2023), 4.9% (pembrolizumab) and 7.6% (placebo) of participants experienced surgical delay; 38.9% and 28.4%, respectively, experienced nodal downstaging; 78.8% and 75.1% underwent lobectomy; and 92.0% and 84.2% had R0 resections. Pembrolizumab improved EFS irrespective of disease stage, nodal status, and type of surgery vs chemotherapy. Eight participants (pembrolizumab, n = 6; placebo, n = 2) died ≤30 days after surgery from surgery-related adverse events.

CONCLUSIONS Neoadjuvant pembrolizumab did not adversely affect surgical outcomes, was associated with numerically higher R0 resections, and improved EFS vs neoadjuvant chemotherapy in surgically relevant subgroups in early-stage NSCLC.

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Anti–programmed cell death protein 1 (PD-1) and anti–programmed cell death ligand 1 (PD-L1) antibodies improved survival in patients with locally advanced or metastatic non-small cell lung cancer (NSCLC).[1,2] For resectable early-stage (stage II or III) disease, several studies have demonstrated benefits with perioperative immune checkpoint inhibitors plus chemotherapy vs chemotherapy alone.[3-5]

In the ongoing phase 3 KEYNOTE-671 study, perioperative pembrolizumab (anti–PD-1) significantly improved event-free survival (EFS; hazard ratio [HR], 0.58; 95% CI, 0.46-0.72; $P < .001$) and overall survival (OS; HR, 0.72; 95% CI, 0.56-0.93; $P = .0052$) with manageable safety vs neoadjuvant chemotherapy and surgery alone in resectable stage II, IIIA, or IIIB (N2 stage) NSCLC.[6,7] More participants had a major pathologic response (30%) or pathologic complete response (18%) with pembrolizumab vs placebo (11% and 4%, respectively). These results led to the approval of perioperative pembrolizumab plus chemotherapy by several regulatory bodies around the world.[8,9]

Given the benefits provided by perioperative pembrolizumab and other anti–PD-(L)1 therapies in early-stage NSCLC, it is important to examine the impact of these regimens on surgical choice and outcomes, and whether patient characteristics impact outcomes. Here, we present exploratory analyses from KEYNOTE-671, examining outcomes by surgical procedure, surgical completeness, and postsurgery N stage, and the impact of surgical factors on EFS.

PATIENTS AND METHODS

PARTICIPANTS. The study was conducted in accordance with the principles of Good Clinical Practice and was approved by appropriate institutional review boards and regulatory agencies. An independent ethics committee or institutional review board at each site approved the protocol before study-related procedures began. All participants provided written informed consent. Details regarding access to study data are in the Supplemental Material.

Adults (≥18 years) with previously untreated, pathologically confirmed, stage II, IIIA, or IIIB (with involvement of ≥1 ipsilateral mediastinal or subcarinal lymph node [N2 node stage]) NSCLC (per American Joint Committee on Cancer, 8th edition) that was deemed resectable after surgical consultation and investigator assessment were enrolled. Additional eligibility criteria are in the Supplemental Material.

STUDY DESIGN AND TREATMENT. In this double-blind, placebo-controlled, phase 3 study, participants were randomized 1:1 to receive 4 cycles of neoadjuvant pembrolizumab 200 mg intravenously or placebo every 3 weeks. Participants also received neoadjuvant chemotherapy with cisplatin and gemcitabine (squamous histology) or cisplatin and pemetrexed (nonsquamous histology), followed by surgery. If a participant received ≤4 cycles of neoadjuvant therapy, they could remain in the study and receive surgery followed by adjuvant therapy. Participants then received 13 cycles of adjuvant pembrolizumab or placebo every 3 weeks. Randomization was stratified by tumor stage (II vs III), PD-L1 tumor proportion score (<50% vs ≥50%), tumor histology (squamous vs nonsquamous), and geographic region (East Asia vs non–East Asia).

Surgery was performed ≤20 weeks after first neoadjuvant dose, or 4-8 weeks after the last dose if the participant received ≤4 cycles of neoadjuvant treatment. Lobectomy, bilobectomy, pneumonectomy,

sleeve lobectomy, sleeve pneumonectomy, and chest wall resection were permitted; wedge resection or segmentectomy was not permitted. Mediastinal lymph node (N2) dissection was preferred and consisted of complete removal of all accessible ipsilateral mediastinal lymph node levels. N1 lymph nodes were generally removed as part of the resected lobe or lung, but, if removed separately, they were labeled and submitted to the pathologist as separate specimens. Acceptable lymph node dissection involved removal of ≥2 N2 lymph nodes, 1 of which was level 7 (per American Joint Committee on Cancer/International Union Against Cancer classification). Radiotherapy was recommended for participants with microscopic positive margins, gross residual disease, or extracapsular nodal extension after surgery and to participants who did not undergo planned surgery for any reason other than local progression or metastatic disease. Radiotherapy was not permitted for participants with completely resected N2 disease in the absence of extracapsular spread. Protocol-specified reasons to discontinue treatment are in the Supplemental Material.

ENDPOINTS. The dual primary endpoints were EFS (time from randomization to the first occurrence of local progression precluding planned surgery, unresectable tumor, progression, recurrence per Response Evaluation Criteria in Solid Tumors [RECIST] version 1.1 by investigator, or death from any cause) and overall survival (time from randomization to death from any cause). Key secondary endpoints included major pathologic response rate, pathologic complete response rate, and safety.

ASSESSMENTS. Tumor imaging was performed at screening, week 7, and week 13 during the neoadjuvant phase using computed tomography (chest, abdomen, pelvis) or magnetic resonance imaging (when computed tomography was contraindicated or for imaging the brain). After surgery, new baseline imaging was performed ≤4 weeks before beginning adjuvant treatment and was continued every 16 weeks through the end of year 3, then every 6 months for years 4 and 5.

For assessment of residual disease, the primary surgical resection specimen was evaluated by a local pathologist. Margins were defined as negative (R0) if there was no invasive cancer at the bronchial margin or the soft tissue surrounding the bronchus, at the pulmonary artery or pulmonary vein margins or surrounding soft tissue, or at the medial, lateral, and inferior margins of chest wall resection, and if there were no tumor cells at the surgical margins and no bronchial dysplasia. Margins were defined as positive if there was microscopic invasive cancer at the bronchial, pulmonary vein, or pulmonary arterial margins or surrounding soft tissue (R1), carcinoma in situ at the bronchial margin (R1), or gross residual disease (R2).

Adverse events (AEs) were assessed from time of randomization through 30 days after discontinuation of study treatment (90 days for serious AEs) and were graded per the National Cancer Institute Common Terminology Criteria for Adverse Events version 4.03. Serious AEs considered by the investigator to be treatment-related were reported at any time after discontinuation of study treatment. For this analysis, AEs were assessed during the surgical period, defined as the time between the date of surgery and the first dose of radiotherapy or adjuvant pembrolizumab/placebo, whichever occurred earlier. For participants who did not receive radiotherapy or adjuvant treatment, AEs were analyzed ≤90 days after surgery.

The objectives of this exploratory analysis were to summarize the clinical stage at baseline, surgical procedure, surgical completeness, and postsurgery N status and to assess the impact of surgical-related data on EFS. Description of statistical analysis is available in the Supplemental Material.

RESULTS

PARTICIPANTS. Between April 2018 and December 2021, 797 participants were randomized to pembrolizumab (n = 397) or placebo (n = 400; Supplemental Figure 1). Overall, 325 participants (82.1%) in the pembrolizumab arm and 317 (79.4%) in the placebo arm underwent in-study surgery (Table). Among those who underwent in-study surgery, 256 participants (78.8%) received 4 cycles of neoadjuvant pembrolizumab and 38 participants (11.7%) received 3 cycles; 256 (80.8%) and 37 (11.7%) received 4 or 3 cycles of neoadjuvant placebo, respectively. At the interim analysis 2 (IA2) data cutoff (July 10, 2023), median follow-up was 36.6 (range, 18.8-62.0) months. Baseline characteristics in the intent to treat population were balanced across treatment arms (Supplemental Table 1). Most participants in both treatment arms had stage IIIA disease, and T and N status were balanced between treatment arms (Supplemental Figure 2).

The Table and Supplemental Table 2 characterize surgery types and outcomes for the surgical population. In the surgical population, median time (range) from randomization to surgery was

TABLE Surgery Timing, Type, and Outcome in the Surgical Population and by Disease Stage at Diagnosis

	Pembrolizumab Arm n = 325	Placebo Arm n = 317
Participants with surgical delay[a]	16 (4.9)	24 (7.6)
Due to adverse event	10 (3.1)	8 (2.5)
Due to administrative delay[b]	5 (1.5)	14 (4.4)
Due to participant/physician decision	1 (0.3)	2 (0.6)
Time from randomization to surgery, wk		
All participants	15.4 (4.4–29.0)	15.4 (3.9–25.6)
Participants with surgical delay	20.5 (9.1–29.0)	18.9 (8.7–25.6)
Time from last neoadjuvant dose to surgery, wk		
All participants	5.9 (2.6–19.7)	5.6 (1.9–13.9)
Participants with surgical delay	11.6 (7.3–19.7)	9.9 (8.1–13.9)
Duration of surgical hospital stay, d	8 (1–50)	8 (1–65)
Surgery type		
Lobectomy	256 (78.8)	238 (75.1)
Stage II disease at baseline	73 (73.7)	75 (72.8)
Stage III disease at baseline	183 (81.0)	163 (76.2)
Bilobectomy	26 (8.0)	26 (8.2)
Stage II disease at baseline	11 (11.1)	13 (12.6)
Stage III disease at baseline	15 (6.6)	13 (6.1)
Pneumonectomy	37 (11.4)	39 (12.3)
Stage II disease at baseline	15 (15.2)	12 (11.7)
Stage III disease at baseline	22 (9.7)	27 (12.6)
Other[c]	6 (1.8)	14 (4.4)
Stage II disease at baseline	0 (0.0)	3 (2.9)
Stage III disease at baseline	6 (2.7)	11 (5.1)
Surgical completeness		
R0	299 (92.0)	267 (84.2)
Stage II disease at baseline	94 (94.9)	89 (86.4)
Stage III disease at baseline	205 (90.7)	178 (83.2)
R1[d]	17 (5.2)	31 (9.8)
Stage II disease at baseline	4 (4.0)	10 (9.7)
Stage III disease at baseline	13 (5.8)	21 (9.8)
R2	4 (1.2)	4 (1.3)
Stage II disease at baseline	1 (1.0)	0 (0.0)
Stage III disease at baseline	3 (1.3)	4 (1.9)
Unresectable[e]	5 (1.5)	15 (4.7)
Stage II disease at baseline	0 (0.0)	4 (3.9)
Stage III disease at baseline	5 (2.2)	11 (5.1)

[a]Surgical delay was defined as >20 weeks between the first neoadjuvant dose and surgery in participants who received 4 cycles of neoadjuvant therapy or >8 weeks between the last neoadjuvant dose and surgery for 1–3 cycles of neoadjuvant therapy; [b]Administrative delays include delays due to the COVID-19 pandemic, and non-COVID administrative delays include national holidays, vacation schedules, and operating room availability, etc; [c]Thoracotomy: pembrolizumab arm, n = 4 (1 each with wedge resection and segmentectomy); placebo arm, n = 13 (1 with lymph node dissection); [d]R1 resection did not include extracapsular spread in the N2 lymph nodes; [e]Unresectable at the time of surgery, defined as a tumor that has growth into the mediastinum, invaded into major vascular structures, or any other circumstance in which the tumor could not be surgically removed. Data are presented as n (%) or median (range).

15.4 (4.4-29.0) weeks in the pembrolizumab arm and 15.4 (3.9-25.6) weeks in the placebo arm (Table). Sixteen participants (4.9%) in the pembrolizumab arm and 24 participants (7.6%) in the placebo arm had delayed surgery, defined as >20 weeks between first dose of neoadjuvant therapy and surgery for participants who received 4 cycles of neoadjuvant therapy and >8 weeks for 1-3 cycles of neoadjuvant therapy. For these participants, median time (range) from randomization to surgery was 20.5 (9.1-29.0) weeks and 18.9 (8.7-25.6) weeks, respectively. Common reasons for surgery delay were AEs (n = 10 [3.1%] and n = 8 [2.5%] in the surgical population from the pembrolizumab and placebo arms, respectively) or non-COVID administrative delay (n = 4 [1.2%] and n = 11 [3.5%]; Table); no immune-mediated AEs or infusion reactions led to surgical delay. In the surgical population, 256 participants (78.8%) in the pembrolizumab arm and 238 (75.1%) in the placebo arm underwent lobectomy; 37 (11.4%) and 39 (12.3%) underwent a

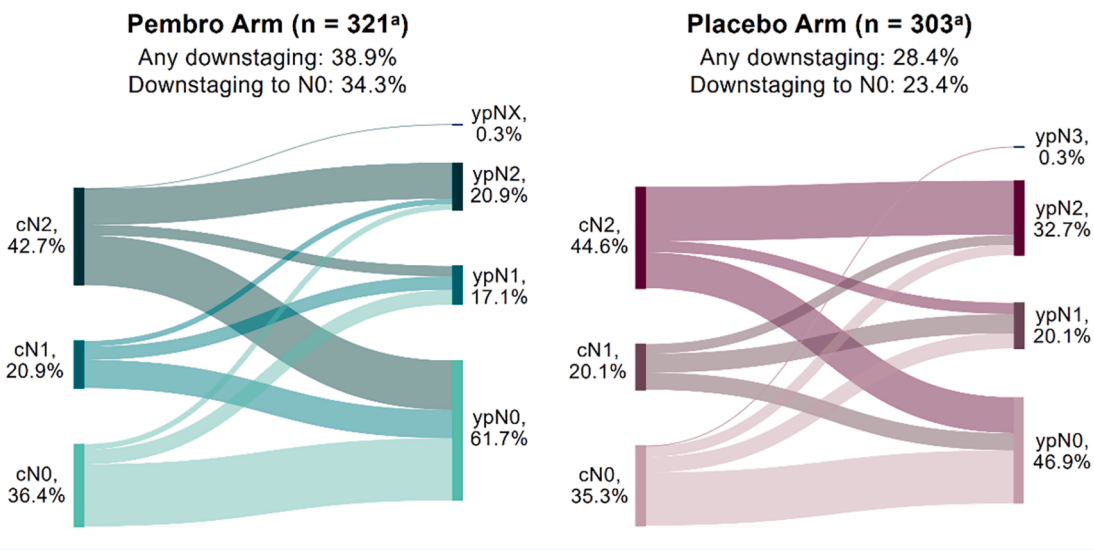

FIGURE 1 Nodal status at baseline and after surgery in the surgical population. [a]Postsurgery N status was missing for 4 participants in the pembro arm and 14 participants in the placebo arm. (pembro, pembrolizumab.)

pneumonectomy, respectively, with left side n = 23 (62.2%) and n = 15 (38.5%) in the pembrolizumab and placebo arms, and right side in n = 14 (37.8%) and 24 (61.5%), respectively. This was generally consistent among world regions, except for a higher percentage of pneumonectomies in regions outside of North America, Western Europe, and East Asia (Supplemental Table 2). More participants in the pembrolizumab arm had an R0 resection vs the placebo arm (299 [92.0%] vs 267 [84.2%]), irrespective of disease stage and world region (Table and Supplemental Table 2). Median (range) durations of surgical hospital stays were similar between treatment arms: 8 (1-50) days with pembrolizumab and 8 (1-65) days with placebo. These were highest in regions outside of North America, Western Europe, and East Asia (median, 12.0 and 11.5 days for the pembrolizumab and placebo arms, respectively) and lowest in North America (median, 6 and 7 days, respectively).

Baseline nodal and T-status are in Supplemental Table 1. In the surgical population, 38.9% of participants in the pembrolizumab arm and 28.4% in the placebo arm experienced nodal downstaging, with 34.3% and 23.4%, respectively, experiencing downstaging to pN0 disease (Figure 1). In the pembrolizumab arm, 69.5% experienced T-status downstaging and 47.9% in the placebo arm; after surgery, 28.7% and 6.6%, respectively, had T0 disease. The overall tumor stage decreased after surgery for 69.2% and 47.5% of participants, respectively, including 27.4% and 6.9% who had stage 0 disease after surgery.

EFFICACY. EFS at IA2 in the intent to treat population was previously reported.[7] Exploratory analyses of EFS in surgically relevant subgroups demonstrated that HRs for EFS favored pembrolizumab, with improved EFS in all subgroups regardless of clinical stage at diagnosis (Figures 2, 3; Supplemental Figure 3).

In surgically relevant subgroups determined by postrandomization factors, including whether surgery was performed and surgery type, EFS was improved with pembrolizumab vs placebo (Figure 2; Supplemental Figures 4, 5). Pembrolizumab also improved EFS vs placebo for participants who had R0 resection (HR, 0.53; 95% CI, 0.41-0.68) but not for participants who had R1 or R2 resections (HR, 1.04; 95% CI, 0.54-2.03; Figure 2; Supplemental Figure 6).

SAFETY. During the surgical treatment phase, AEs of any grade occurred in 233 participants (71.7%) in the pembrolizumab arm and 229 (72.2%) in the placebo arm of the surgical population (Supplemental Table 3). The most common AEs were procedural pain (pembrolizumab arm, 17.8%; placebo arm, 18.0%) and anemia (14.8% and 17.0%). Grade 3-5 AEs were reported for 83 participants (25.5%) in the pembrolizumab arm and 68 participants (21.5%) in the placebo arm, and 18 participants (5.5%) and 7 (2.2%), respectively, discontinued further treatment (ie, adjuvant treatment with

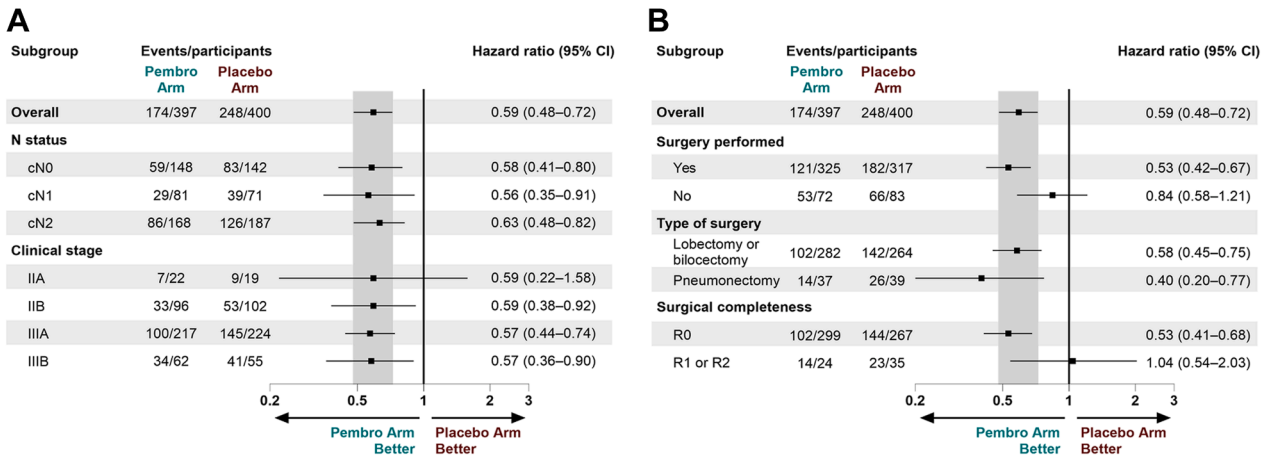

FIGURE 2 Exploratory analysis of event-free survival in surgically relevant participant subgroups in the surgical population by (A) baseline characteristics and (B) postrandomization factors. (pembro, pembrolizumab.)

pembrolizumab or placebo) due to an AE. The most common grade 3-5 AEs were anemia (pembrolizumab arm, 4.9%; placebo arm, 5.0%) and pneumonia (2.5% in each arm). Twenty-five participants (6.3%) in the pembrolizumab arm did not receive surgery due to an AE during the neoadjuvant phase (Supplemental Figure 1), and 7 participants (1.8%) had immune-mediated AEs or infusion reactions resulting in treatment discontinuation, including immune-mediated lung disease (n = 1), myocarditis (n = 1), colitis (n = 1), myositis (n = 1), interstitial lung disease (n = 2), dyspnea (n = 1), pneumonitis (n = 1), and myositis (n = 1).

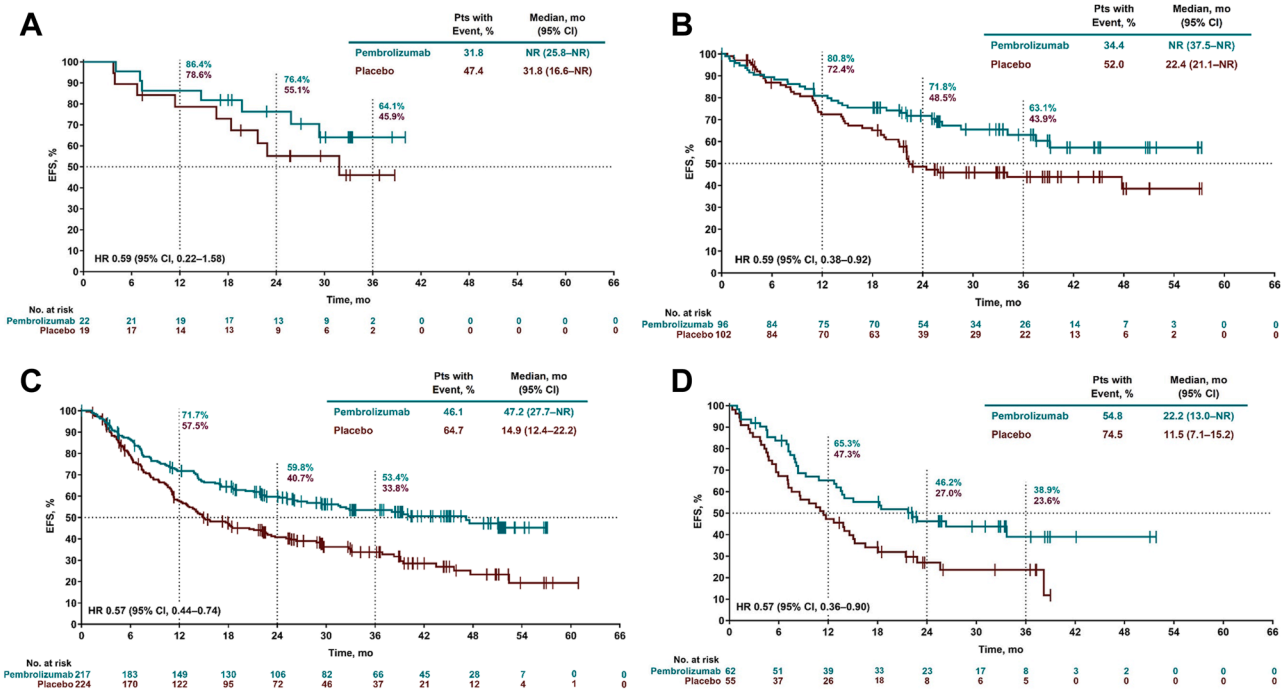

FIGURE 3 Kaplan–Meier estimates of event-free survival (EFS) by clinical stage at baseline. (A) Stage IIA. (B) Stage IIB. (C) Stage IIIA. (D) Stage IIIB. (HR, hazard ratio; NR, not reached; Pts, participants.)

MORTALITY. In the surgical population, 6 of 325 participants (1.8%) in the pembrolizumab arm died ≤30 days and 13 (4.0%) died ≤90 days after surgery (Supplemental Table 4). In the placebo arm, 2 of 317 participants (0.6%) died ≤30 days after surgery and 5 (1.6%) died ≤90 days. In the pembrolizumab arm, causes of death ≤30 days after surgery were pulmonary embolism (n = 2) and pulmonary hemorrhage due to arterial injury during surgery, pulmonary sepsis, respiratory failure, and septic shock (n = 1 each), all attributed to surgery. In the placebo arm, the causes of death ≤30 days were pneumonia and respiratory failure (n = 1 each), both attributed to surgery. There were an additional 7 and 3 deaths, respectively, during postoperative days 31-90, none of which were attributed to surgery. The causes of death were malignant neoplasm progression (n = 3) and cardiac arrest, pulmonary hemorrhage, immune-mediated lung disease (attributed to study drug), and unexplained death (n = 1 each) in the pembrolizumab arm, and acute respiratory failure, malignant neoplasm progression, and septic shock (n = 1 each) in the placebo arm. Mortality varied among surgical types, with 3.5% of participants in the pembrolizumab arm and 1.5% in the placebo arm who underwent lobectomy or bilobectomy dying ≤90 days after surgery. In participants who underwent pneumonectomy, 8.1% and 2.6%, respectively, died ≤90 days after surgery. All-cause mortality varied by region, ranging from 0% and 3.6% in the pembrolizumab arm and placebo arm, respectively, ≤90 days after surgery in North America to 7.7% and 1.7% in regions outside North America, Western Europe, and East Asia (Supplemental Table 4). There were no meaningful differences in baseline characteristics between treatment arms among participants who died ≤90 days after surgery (Supplemental Table 5).

COMMENT

In this descriptive analysis of the surgical population at IA2 of the phase 3 KEYNOTE-671 study, neoadjuvant treatment of early-stage NSCLC with pembrolizumab plus chemotherapy did not affect the surgical procedure utilized, delay surgery, or prolong the surgical hospital stay relative to neoadjuvant chemotherapy alone. In the overall surgical population, perioperative pembrolizumab was associated with numerically higher percentages of R0 resection than chemotherapy and surgery alone. Additionally, perioperative pembrolizumab was associated with numerically greater proportions of participants experiencing improvements in lymph node, primary tumor, and overall tumor downstaging compared with neoadjuvant chemotherapy. Postoperative mortality rates were generally low in the surgical population overall and were consistent with those reported for historical studies.[10,11]

In this exploratory analysis of surgical factors, we found little difference between treatment arms in surgical delay or length of hospital stay, suggesting that choice of neoadjuvant treatment did not have a meaningful effect on these surgical outcomes. Among those with surgical delay, AEs were a more common reason for surgical delay in the pembrolizumab arm compared with the placebo arm; however, overall, the proportions of participants with surgical delay were low for both treatment arms (4.9% vs 7.6%, respectively). Examining choice of surgical procedure, no difference was found between treatment arms, and it did not differ greatly based on either disease stage at baseline or world region where treatment was received. One difference that was observed was in the percentage of lobectomies vs pneumonectomies in regions outside of North America, Western Europe, and East Asia, which may be due to regional clinical practices in sites that were included together as a group for this analysis.

Surgical completeness (R0 vs R1/R2) was improved with perioperative pembrolizumab vs chemotherapy, where roughly twice as many participants did not achieve an R0 resection with chemotherapy and surgery alone compared with pembrolizumab plus chemotherapy and surgery (8.0% and 15.8%, respectively). This was generally consistent regardless of disease stage at baseline or world region. As R0 resection is known to positively impact survival,[12] it is not surprising that efficacy outcomes were improved with pembrolizumab and correlated with a higher percentage of R0 resections compared with chemotherapy alone.

Perioperative pembrolizumab significantly improved EFS vs neoadjuvant chemotherapy and surgery alone in the first interim analysis from KEYNOTE-671.[6] This benefit was maintained after a median follow-up of 36.6 months at IA2.[7] Perioperative pembrolizumab improved EFS regardless of N status and clinical stage at diagnosis and the postrandomization factors of whether surgery was performed, type of surgery, and for surgical procedures with complete resection. There were 2 subgroups

(stage IIA NSCLC and participants who did not undergo surgery) in which the HR was below 1.0, but the upper limit of the 95% CI crossed 1.0. The subgroup of participants with stage IIA disease was small (n = 41), which may account for the wide confidence interval observed. As for participants who did not undergo surgery, this occurred mostly due to AEs and progressive disease, both of which would potentially impact EFS outcomes for these participants.

Although cross-study comparisons should be made with caution, these outcomes are similar to other studies of neoadjuvant anti–PD-(L)1 therapy plus chemotherapy followed by adjuvant anti–PD-(L)1 therapy, including AEGEAN (perioperative durvalumab), Neotorch (perioperative toripalimab), and CheckMate 77T (perioperative nivolumab),[3-5] and to outcomes from CheckMate 816 (neoadjuvant nivolumab plus chemotherapy).[13] Analyses of surgical outcomes were reported in AEGEAN, CheckMate 77T, and CheckMate 816, including surgical delays, surgical completeness, surgery type, and time to surgery from last neoadjuvant dose. These data were qualitatively similar to data presented here. Considered together, these data suggest that neoadjuvant anti–PD-(L)1 therapy does not adversely impact surgical outcomes compared with chemotherapy.

We also examined safety in the surgical population. The incidence of all-cause AEs during the surgical treatment phase was the same between treatment arms (72%), although with an additional therapy (pembrolizumab), more participants discontinued treatment due to AEs (6% with pembrolizumab vs 2% with placebo). Neoadjuvant pembrolizumab did not greatly affect whether participants underwent surgery, with just 6% of participants in the pembrolizumab arm not receiving surgery due to an AE compared with 4% in the placebo arm. No new safety signals were observed.

In the overall surgical population, mortality was slightly higher in the pembrolizumab arm at both 30 and 90 days after surgery (2% and 4%, respectively) compared with the placebo arm (1% and 2%) and was irrespective of surgery type. Additionally, participants who underwent pneumonectomy had higher mortality within 90 days of surgery than participants who underwent lobectomy or bilobectomy (8.1% for pneumonectomy and 3.5% for lobectomy/bilobectomy with pembrolizumab vs 2.6% and 1.5%, respectively, with placebo). Slight differences were observed based on world region where treatment was received, but this may have been due to a higher percentage of participants undergoing pneumonectomy in those regions or differences in postoperative care. Similar mortality rates have been reported in retrospective studies of patients with lung cancer[10] and previous studies have described an increased mortality risk with pneumonectomy vs lobectomy.[14] These data provide important insights that could prompt future research on how to mitigate postoperative mortality risk in this patient population.

In conclusion, these exploratory analyses of patient characteristics and surgical factors from KEYNOTE-671 suggest that neoadjuvant treatment of early-stage NSCLC with pembrolizumab plus chemotherapy does not affect choice of surgical procedure or delay surgery and is associated with numerically higher R0 resections and lymph node downstaging compared with chemotherapy and surgery alone. Additionally, although postoperative mortality rates were slightly higher, perioperative pembrolizumab improved EFS in nearly all surgically relevant participant subgroups. These findings add support for perioperative pembrolizumab plus chemotherapy as a new standard of care for resectable stage II-III NSCLC.

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