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# First-line pembrolizumab plus chemotherapy significantly improves outcomes in advanced NSCLC

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The addition of PD-1 antibody pembrolizumab to standard first-line chemotherapy for treatment-naïve advanced non-small-cell lung cancer significantly improves response rates and progression-free survival, researchers reported at the ESMO 2016 Congress in Copenhagen today.

Pembrolizumab is a class of immunotherapeutic anti-cancer drugs called checkpoint inhibitors, which target the mechanism the tumour uses to shut down the body's immune response.

"Pembrolizumab enables T cells to 'reactivate' and accomplish what they are designed to do – facilitate tumour cell killing," said principal investigator Dr Corey Langer, director of the Thoracic Oncology Program at the Abramson Cancer Center at the University of Pennsylvania, US.

In the phase II KEYNOTE-021 study, researchers randomized 123 patients with stage IIIB/IV, chemotherapy-naive, nonsquamous non-small-cell lung cancer to receive four cycles of carboplatin and pemetrexed (500 mg/m2 every three weeks), with or without 24 months treatment with pembrolizumab (200mg every three weeks).

After a median follow-up of 10.6 months, researchers observed a significantly greater objective response rate (55% vs. 29%, P = 0.0016) in the patients who received pembrolizumab as well as chemotherapy,

compared to those treated with chemotherapy alone. While patients were not selected by the amount of PD-L1 expression in their tumour, researchers did note a higher response rate (around 80%) for the pembrolizumab and chemotherapy combination in tumours with PD-L1 expression greater than or equal to 50%.

Participants in the pembrolizumab arm also experienced an improved progression-free survival (median 13.0 months vs. 8.9 months) although overall survival rates were similar between the two arms (6 month survival rate = 92%), in this early landmark assessment.

There was a higher incidence of adverse events of grade 3 severity or above in the pembrolizumab arm compared to the chemotherapy alone arm (39% vs. 26%), but this had no impact on treatment discontinuation rates (10% for the pembrolizumab arm compared to 13% for the chemotherapy only arm) or treatment-related deaths. The most common treatment-related adverse events were fatigue and nausea, which were more common in patients receiving pembrolizumab, and anemia, which was more common in the chemotherapy alone arm of the study.

"This is the first randomized phase II trial in advanced, treatment-naïve non-squamous non-small-cell lung cancer to assess the benefit of adding a monoclonal antibody targeting PD1 to standard chemotherapy," said Langer. "If these benefits are confirmed in an ongoing phase III trial, the results may radically alter the treatment paradigm in advanced non-small-cell lung cancer."

Commenting on the study, Dr Raffaele Califano, Consultant in Medical Oncology at The Christie Hospital and University Hospital of South Manchester in Manchester, UK said: "Data for the combination of chemotherapy plus pembrolizumab in this population is certainly encouraging, and it is reassuring to see that the addition of pembrolizumab to first-line chemotherapy has a manageable toxicity

profile and doesn't increase the incidence of treatment-related adverse events or deaths."

"Notably, the progression-free survival reported in the standard arm was much longer than expected and nearly doubled when compared to historical data, which could be due to patient selection or other clinical/molecular characteristics of the patients enrolled in this study," Califano said.

"In order to establish if this strategy should be adopted in clinical practice, these results should be investigated further in a phase III randomized study with a similar design, adequately powered for progression-free survival and with robust assessment of patient's reported outcomes."

**More information:** Randomized, phase 2 study of carboplatin and pemetrexed with or without pembrolizumab as first-line therapy for advanced NSCLC: KEYNOTE-021 cohort G will be presented by Dr Corey Langer during Presidential Symposium 2 on Sunday 9 October, 16:30 (CEST).

Provided by European Society for Medical Oncology

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