Lung

Cemiplimab monotherapy for first-line treatment of advanced non-small-cell lung cancer with PD-L1 of at least 50%: a multicentre, open-label, global, phase III, randomised, controlled trial

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BACKGROUND

We aimed to examine cemiplimab, a programmed cell death 1 inhibitor, in the first-line treatment of advanced non-small-cell lung cancer with programmed cell death ligand 1 (PD-L1) of at least 50%.

METHODS

In EMPOWER-Lung 1, a multicentre, open-label, global, phase III study, eligible patients recruited in 138 clinics from 24 countries (aged ≥18 years with histologically or cytologically confirmed advanced non-small-cell lung cancer, an Eastern Cooperative Oncology Group performance status of 0-1; never-smokers were ineligible) were randomly assigned (1:1) to cemiplimab 350 mg every three weeks or platinum-doublet chemotherapy. Crossover from chemotherapy to cemiplimab was allowed following disease progression. Primary endpoints were overall survival and progression-free survival per masked independent review committee. Primary endpoints were assessed in the intention-to-treat population and in a prespecified PD-L1 of at least 50% population (per US Food and Drug Administration request to the sponsor), which consisted of patients with PD-L1 of at least 50% per 22C3 assay done according to instructions for use. Adverse events were assessed in all patients who received at least one dose of the assigned treatment. This study is registered with ClinicalTrials.gov, NCT03088540 and is ongoing.

FINDINGS

Between 27 June, 2017 and 27 Feb 2020, 710 patients were randomly assigned (intention-to-treat population). In the PD-L1 of at least 50% population, which consisted of 563 patients, median overall survival was not reached (95% CI 17·9-not evaluable) with cemiplimab (n=283) versus 14·2 months (11·2-17·5) with chemotherapy (n=280; hazard ratio [HR] 0·57 [0·42-0·77]; p=0·0002). Median progression-free survival was 8·2 months (6·1-8·8) with cemiplimab versus 5·7 months (4·5-6·2) with chemotherapy (HR 0·54 [0·43-0·68]; p<0·0001). Significant improvements in overall survival and progression-free survival were also observed with cemiplimab in the intention-to-treat population despite a high crossover rate (74%). Grade 3-4 treatment-emergent adverse events occurred in 98 (28%) of 355 patients treated with cemiplimab and 135 (39%) of 342 patients treated with chemotherapy.

INTERPRETATION

Cemiplimab monotherapy significantly improved overall survival and progression-free survival compared with chemotherapy in patients with advanced non-small-cell lung cancer with PD-L1 of at least 50%, providing a potential new treatment option for this patient population.