Results Sixteen phase III clinical trials were identified (nivolumab=4; pembrolizumab=5; atezolizumab=5; avelumab=1; durvalumab=1). Across the 3 nivolumab monotherapy trials (n=638; median ages: 61–63 years), median progression-free survival (PFS) ranged 2.3–4.2 months; response rates ranged 19%–26%; grade 3/4 adverse events occurred in 7%–18% of patients. Nivolumab in combination with ipilimumab (n=583; median age: 64 years) had a median PFS of 5.1 months and response rate of 33%; grade 3/4 adverse events occurred in 33% of patients. Across the 3 pembrolizumab monotherapy trials (n=1,481; median ages: 63–64 years), median PFS ranged 3.9–10.3 months; response rates ranged 18%–45%; grade ≥3 adverse events occurred in 13%–27% of patients. In the 2 pembrolizumab combination therapy trials (n=688; median ages: 65 years), median PFS ranged 6.4–8.8 months; response rates ranged 48%–58%; grade ≥3 adverse events occurred in 67%–70% of patients. In the 4 atezolizumab combination therapy trials (n=1,486; median ages: 63–64 years), median PFS ranged 6.3–8.3 months; response rates ranged 47%–63.5%; grade 3/4 adverse events occurred in 54%–73% of patients. In the 3 monotherapy trials of atezolizumab (n=613; median age: 63 years), avelumab (n=396; median age: 64 years), and durvalumab (n=476; median age: 64 years), the median months of PFS were 2.7, 2.8, and 17.2, respectively; response rates were 14%, 15%, and 30%, respectively; grade ≥3 adverse events occurred in 15%, 10%, and 30.5% of patients, respectively.

Conclusions Although treatment responses varied, most of the evaluated PD-1/PD-L1 inhibitors were associated with a clinical benefit for NSCLC trial patients. Generally, treatment efficacy was greater with combination therapies, but adverse events occurred more frequently. Innovations in the targeting/personalization of PD-1/PD-L1 combination therapies will likely lead to improved NSCLC patient outcomes and further research is needed in this regard.

REFERENCES