Tislelizumab vs pembrolizumab for first-line treatment of non-small cell lung cancer: literature review of indirect treatment comparisons

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ABSTRACT

Background: Immuno-oncology agents such as tislelizumab (TIS) and pembrolizumab (PEM) that inhibit programmed cell death (PD) protein 1 (PD-1) with or without chemotherapy (CT) have demonstrated survival benefits among patients with advanced/metastatic non-small cell lung cancer (NSCLC), vs CT alone. However, no head-to-head trials of TIS vs PEM are available. Thus, this targeted literature review of published indirect treatment comparisons (ITCs) identified comparative evidence on survival outcomes for first-line (1L) NSCLC treatment with TIS or PEM regimens.

Methods: MEDLINE, Embase, the Cochrane Database of Systematic Reviews and Epistemonikos were searched in Mar/Apr 2025. ITCs reporting overall survival (OS) or progression-free survival (PFS) for TIS and PEM (as monotherapy [mono] or combination therapies) among patients with 1L NSCLC were eligible.

Results: Of 33 abstracts retrieved and 22 potentially eligible full-texts reviewed, 15 articles on 14 unique studies were ultimately eligible. 11 studies were network meta-analyses (NMAs), 2 were Bucher ITCs and 1 reconstructed individual patient data using IPDfromKM-Shiny. Most ITCs used CT or atezolizumab(±CT) as the connecting node. In 6 ITCs comparing PEM vs TIS regimens for OS, none had statistically significant differences, regardless of histology. In 7 ITCs reporting hazard ratios comparing PFS for TIS+CT vs PEM+CT in the overall population, none reported statistically significant differences. In 4 ITCs analysing non-squamous (NSQ) NSCLC, 1 reported no significant differences in PFS for TIS mono vs PEM mono; results for TIS+CT vs PEM+CT and TIS+CT vs PEM mono were mixed, as 1 NMA for each reported no significant differences, but another NMA reported better PFS with PEM, regardless of CT, vs TIS+CT. In analyses of PD ligand-1 (PD-L1) ≥50% patients, 3 ITCs found no significant PFS differences for TIS+CT vs PEM+CT, but PFS for TIS+CT vs PEM mono was mixed (TIS+CT was significantly better in 1 ITC; no difference in 1 ITC). In analyses of squamous (SQ) NSCLC from 4 ITCs, 3 found no significant differences in PFS for TIS+CT vs PEM+CT or TIS mono vs PEM mono, but 1 NMA found significantly better PFS for TIS+CT vs PEM+CT and for PEM mono vs TIS+CT.

Conclusions: In most ITCs, TIS and PEM regimens had comparable survival outcomes. While OS outcomes were similar regardless of subgroup, some analyses showed differences in PFS for TIS vs PEM based on histology or PD-L1 status. ITC results were broadly consistent, but differences in ITC methodology may have led to specific divergences in results within subgroups.