TPS8659 Poster Session

Phase 2, multicenter study of frontline maintenance therapy with lifileucel plus pembrolizumab in advanced non-small cell lung cancer.

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Background: Tumor-infiltrating lymphocyte (TIL) therapy with lifileucel plus pembrolizumab (pembro) demonstrated durable and deepening responses with an objective response rate (ORR) of 64.3% in patients (pts) with anti–PD-1/PD-L1–naive, *EGFR* wild-type, locally advanced or metastatic non-small cell lung cancer (mNSCLC) in cohort 3A of the IOV-COM-202 phase 2 open-label study (NCT03645928), with 4 of 5 ongoing responses lasting >20 months from start of therapy and no new safety signals. We added two new cohorts within this basket study, 3D and 3E, which evaluate if adding lifileucel to pembro ± pemetrexed in the maintenance phase of standard-of-care (SOC) therapy (from tumors procured in treatment-naive pts [3D] versus those who had already started receiving SOC chemotherapy [3E]) is feasible and provides added benefit with an acceptable safety profile. Incorporating TIL with current SOC has the potential to address a major unmet need by improving outcomes that are not durable or adequate for many pts with NSCLC. **Methods:** Pts have tumor resection before cycle 1 (3D) or between cycles 1 and 4 (3E) of frontline platinum-doublet chemotherapy plus pembro. After completion of SOC chemotherapy, a dose of pembrolizumab will be given followed by nonmyeloablative lymphodepletion (NMA-LD) (day −5 to day −3: cyclophosphamide 20 mg/kg/day; day −5 to day −2: fludarabine 25 mg/m2/day). Lifileucel is administered on day 0, followed by IL-2 continuous infusion on days 1–4. Following lifileucel and IL-2, pembro (plus pemetrexed if nonsquamous histology) will be continued for up to 2 years or until disease progression or unacceptable toxicity. Eligible adults have histologically confirmed mNSCLC, no actionable mutations with effective targeted therapy, no prior systemic therapy for metastatic NSCLC, ECOG performance status 0–1, estimated life expectancy ≥6 mo, and ≥1 resectable lesion >1.5 cm in diameter to generate lifileucel. Prior organ allograft or cell transfer therapy, symptomatic brain metastases, current systemic steroid therapy >10 mg/day of prednisone or other steroid equivalent, and active illnesses or autoimmune disorders are not permitted. Endpoints include ORR, complete response rate, disease control rate, and PFS by investigator-assessed RECIST v.1.1, OS, percentage of manufactured lifileucel drug products that meets release specification, and incidence of grade ≥3 treatment-emergent adverse events. Selected exploratory endpoints include in vivo T-cell persistence, correlative biomarkers, and circulating tumor DNA. Enrollment of approximately 20 pts per cohort will take place in Europe and North America. Clinical trial information: NCT03645928. Research Sponsor: Iovance Biotherapeutics, Inc.