SERUM ALBUMIN PREDICTS OUTCOME IN PATIENTS WITH EXTENSIVE STAGE SMALL-CELL LUNG CANCER (ES-SCLC) RECEIVING FIRST-LINE COMBINATION OF PD-(L)1 INHIBITORS AND PLATINUM-ETOPOSIDE CHEMOTHERAPY

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**Background** The combination of platinum-etoposide chemotherapy with PD-L1 inhibitors (chemoimmunotherapy) has become the new standard for first-line treatment of patients with extensive stage small-cell lung cancer (ES-SCLC). Nevertheless, factors associated with outcomes in this setting are lacking. We sought to identify clinicopathological and genomic factors associated with outcome to first-line chemoimmunotherapy in patients with ES-SCLC.

**Methods** Among patients at the Dana-Farber Cancer Institute with ES-SCLC who received a combination of platinum (carboplatin or cisplatin), etoposide, and a PD-(L)1 inhibitor (atezolizumab, durvalumab, or pembrolizumab), baseline clinicopathological and genomic features were correlated with objective response rate (ORR), progression-free survival (PFS), and overall survival (OS). For serum biomarkers (hemoglobin, sodium, albumin, lactate dehydrogenase [LDH], and derived neutrophile-to-lymphocyte ratio [dNLR]) a blood draw performed within 10 days from treatment start was considered. Patients who were on corticosteroids at the time of blood draw were not assessed for dNLR.

**Results** Among 89 patients included in the study, 53% were female, median age was 66 years, 17% had an Easter Cooperative Oncology Group performance status (ECOG PS) of 0, and 28% had baseline brain metastases (table 1). The most common treatment regimen was carboplatin-etoposide-atezolizumab in 82 patients (92%). Overall, ORR was 81% (N=71/88), median PFS was 5.0 months (95%CI: 4.7-5.6), and median OS 10.8 months (95%CI: 9.6-16.1), at a median follow-up time of 25.3 months (95%CI: 14.2-NA). Patients with an ECOG PS of 0 when compared to those with an ECOG PS of ≥1 had higher ORR (100% vs 77.0%, P=0.036), longer median PFS (6.2 vs 4.8 months; HR: 1.99 [95%CI: 1.07-3.70], P=0.029) and median OS (20.0 vs 10.3 months; HR: 3.36 [95%CI: 1.21-9.30], P=0.020) (figure 1). Patients with serum albumin levels ≥3.5g/dL (N=74 [84%]), compared to those with low albumin levels (<3.5g/dL, N=13 [16%]), had higher ORR (85% vs 54%, P=0.018), longer median PFS (5.5 vs 3.7 months; HR: 2.91 [95%CI: 1.53-3.53], P=0.001) and median OS (12.3 vs 5.9 months; HR: 4.32 [95%CI: 2.1-8.71], P<0.001). Neither dNLR (available in N=75 [84%]) nor tumor mutation burden (available in N=20 [22%]) were associated with outcome. After adjusting for confounding factors, a low albumin, but not ECOG PS, retained its association with ORR (adjusted odds ratio: 0.27 [95%CI: 0.07-0.96], P=0.025), PFS (adjusted HR: 2.58 [95%CI: 1.35-4.95], P=0.004), and OS (adjusted HR: 3.66 [95%CI: 1.80-7.44], P<0.001).

**Conclusions** Albumin levels might help predicting outcomes to first-line chemoimmunotherapy in patients with ES-SCLC. This can have implication in stratification of patients enrolled in prospective clinical trials.

**Ethics Approval** Patients at the Dana-Farber Cancer Institute who consented to institutional review board-approved protocols DF/HCC 02-180, 11-104, 13-364, and/or 17-000 which allowed for conducting translational research and tumor next-generation sequencing, respectively, were included.

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**Abstract 451 Figure 1** Objective response rate (ORR) and Kaplan-Meier estimates of progression-free survival (PFS) and overall survival (OS) by (A) ECOG PS (0 vs =1) and (B) serum albumin level (low <3.5 g/dL vs normal = 3.5 g/dL).