524 THE ASSOCIATION BETWEEN MESOTHELIAL MEMBRANES METASTASIS AND RESPONSE TO IMMUNE CHECKPOINT INHIBITORS IN SOLID TUMORS

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Background Specific anatomic sites of metastasis (mets) such as liver and brain have been associated with poor response to immune checkpoint inhibitors (ICIs). The association between mesothelial membranes (MMs) mets and response to ICIs in solid tumors has not been established. Herein, we explored the association between MMs mets and response to ICIs.

Methods A cohort of 1661 patients from the MSK's Tumor Mutational Burden (TMB) immunotherapy study was reviewed through cBioCancer Genomics Portal. Patients with identified sites of mets (N=901) were categorized according to the site of mets into Lung, Liver, Central Nervous System (CNS), Bone and MMs. Patients with mets to lymph nodes and other less common (N<50) sites were excluded from our analysis. The log rank test was used to compare Kaplan-Meier survival curves.

Results Among the 901 patients with known site of mets, liver, lung, CNS, bone and MMs mets were reported in 139 (15.4%), 138 (15.3%), 64 (7.1%), 64 (7.1%) and 50 (5.5%) patients respectively. Other patterns of mets were reported in 446 (49.5%) patient. MMs mets to the pleura, peritoneum and pericardium were reported in 31, 18 and 1 patient respectively. The median overall survival (mOS) in patients with liver, lung, CNS, bone and MMs mets is 10, 29 , 24, 14 and 9 months (m) respectively. The mOS in patients with liver mets was worse than patients without liver mets (10 vs 24 m, $p < 0.001$). There was a trend for worse mOS in patients with MMs mets compared to patients with liver mets (9 vs 10 m, p=0.671). There was a trend for worse mOS in patients with MMs mets compared to patients without MMs mets (9 vs 16 m, p=0.148). The mOS in patients with MMs mets was worse compared to patients without MMs or liver mets (9 vs 25 m, p=0.018). This difference remained significant after adjusting for age and the ICI regimen type (anti-PD-(L)1, anti-CTLA-4, combination). The mOS in patients with pleural and peritoneal mets was 9 and 10 m respectively (p=0.76).

Conclusions The association between liver mets and worse OS was reproduced in our analysis. A trend for worse OS was noticeable in patients MMs mets compared to patients with liver mets and to patients with no MMs mets. Compared to patients without liver metastasis and no MMs metastases, patients with MMs metastases had worse OS. There was no statistical difference between peritoneal or pleural mets.

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