For 18 evaluated patients, the ORR and DCR was 50% (9/18) and 83.3% (15/18), respectively. In addition, 4 patients received camrelizumab monotherapy with the ORR of 0% (0/4) and DCR of 25% (1/4), and 14 patients received camrelizumab combination therapy with the ORR of 64.3% (9/14) and DCR of 100% (14/14). 16 of 21 patients were still receiving the treatment, the median PFS was not yet achieved. Exploratory analysis showed that patients with reactive cutaneous capillary endothelial proliferation (RCCEP) had the higher objective response rate than those without RCCEP (57.1% vs 45.5%). Treatment-related adverse events occurred in 47.6% (10/21) of patients, and the most common adverse events were RCCEP (33.3%), rash (14.3%), dry skin (9.5%). Treatment-related grade 3 adverse events occurred in 4.8% (1/21) of patients.

Conclusions Camrelizumab showed antitumour activity in recurrent or metastatic cervical and endometrial carcinoma with manageable toxicities. Camrelizumab combination therapy had better efficacy compared with monotherapy. RCCEP occurrence was positively associated with outcomes of camrelizumab. Further studies are needed to verify this data.

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186 DISTINCT IMMUNE SIGNATURES PREDICTING CLINICAL RESPONSE TO PD-1 BLOCKADE THERAPY IN GYNECOLOGICAL CANCERS REVEALED BY HIGH-DIMENSIONAL IMMUNE PROFILING

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Background Although immune checkpoint blockade revolutionized cancer therapy, response rates have been mixed in gynecological malignancies. While uterine endometrial cancer with high microsatellite instability (MSIHI) and high tumor mutational burden (TMB) respond robustly to checkpoint blockade, high-grade serous ovarian cancer (HGSOC) with low TMB respond modestly. Currently, there has been no known immune signature or T cell phenotype that predicts clinical response in gynecological tumors.

Methods To dissect the immune landscape and T cell phenotype in gynecological cancer patients receiving PD-1 blockade, we used high-dimensional cytometry (flow cytometry and mass cytometry (CyTOF)). We performed longitudinal deep immune profiling of PBMC from patients with recurrent uterine endometrial cancer receiving single-arm nivolumab, and HGSOC patients receiving neoadjuvant nivolumab plus platinum-based chemotherapy prior to debulking surgery.

Results Chemotherapy-resistant MSI-H uterine cancer patients treated with nivolumab had a proliferative T cell response 2–4 weeks post PD-1 blockade, consistent with responses seen in high TMB melanoma and lung cancer. The responding Ki67+ CD8 T cell population was largely CD45RAloCD27hi or CD45RAloCD27lo and highly expressed PD1, CTLA-4, and CD39, consistent with the phenotype of exhausted T cells (TEX). These exhausted-like cells are enriched in responders, whereas early expansion Tregs are enriched in non-responders. Unlike patients with uterine endometrial cancer, patients with TMBlo ovarian cancer did not have a clear proliferative CD8 T cell response after neoadjuvant nivolumab plus chemotherapy treatment, suggesting systemic immune suppression. At baseline, ovarian recurrence without recurrence have more terminally differentiated effector-like CD8 T cells, and patients with recurrence have more naive-like cells. Thus, both high and low TMB gynecological tumors have distinct immune landscapes associated with clinical response. Additionally, in MSI-H uterine endometrial cancer patients, the length of time between the prior chemotherapy and the initiation of immunotherapy was negatively correlated with T cell reinvigoration post immunotherapy and clinical response. This suggests the importance of optimize therapeutic timing to maximize the therapeutic efficacy when combining immunotherapy and chemotherapy.

Conclusions Collectively, our immune profiling revealed the distinct immune signatures associated with clinical response to PD-1 blockade in gynecological cancers. Our results also suggest that TMBhi inflamed versus TMBlo cold tumor microenvironment, and timing of chemo/immunotherapy could impact differentiation and functions of T cells.

Ethics Approval The study was approved by MSKCC Ethics Board, approval number 17–180 and 17–182.

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187 REAL-WORLD TREATMENT PATTERNS AND CLINICAL PREDICTORS OF OVERALL SURVIVAL AMONG ANTI-PD-1 EXPOSED ADVANCED MELANOMA PATIENTS WITH DOCUMENTED EVIDENCE OF DISEASE PROGRESSION

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Background Immuno-oncology (I-O) plays a major role in the treatment of advanced melanoma (aMel); however, resistance to therapy remains an important clinical problem. This study examined treatment patterns and overall survival (OS) for aMel patients who progressed on anti-programmed death ligand 1 (anti-PD-1) therapy in a real-world clinical setting.

Methods A retrospective database study of Flatiron electronic medical records (EMR) was conducted with 304 aMel patients who progressed on first or second line anti-PD1 (baseline) therapy with pembrolizumab or nivolumab and received subsequent (index) therapy with ≥3 months of potential follow-up. Patients who discontinued treatment for reasons other than progression (primarily toxicity) were excluded. The primary outcome was OS, defined using EMR data linked to external mortality sources (e.g. Social Security Death Index). OS analysis was stratified by several factors (e.g. age, ECOG, BRAF, LDH, type of index therapy, and best overall response [BOR]) to baseline anti-PD1 therapy). BOR defined as response, stable disease, or disease progression was based on clinician assessment following radiographic imaging. Descriptive and log-rank test statistics for OS were used.

Results Among patients receiving index therapy (n=304), 50% received I-O (n=91/151 combination therapy), 36% received BRAFi/MEKi (n=102/109 combination therapy) and 14% received other therapies (n=34/44 chemotherapy). Median (range) age was 67 (23–85) years, with 65% male, 62% ECOG≤1, 33% elevated LDH, and 51% with BRAF mutations. Most patients received baseline anti-PD1 monotherapy (77%) as first line therapy. Median OS (95%CI) was 7.2 (6.4, 8.8) months, with a significant OS association with ECOG≤1 (p<0.001), normal LDH (p<0.001), and BRAFi/MEKi (p=0.02), with higher median OS of 9 vs 5 months, 11 vs 6 months, and 11 vs 7 and 6 months, respectively, compared to