Conclusions The model successfully mimicked the prevalent clinical situation, where clear responses in PSA or target lesions are not observed. However, a dramatic increase of cytotoxic T-cells in the tumor was observed, revealing the effects of pembrolizumab in a model of prostate cancer growth in bone of huNOG mice. The model presents a suitable platform for studying combination partners with pembrolizumab, that would boost or unlock the anti-tumor activity of the increased TILs.

Ethics Approval This study was approved by the National Animal Experiment Board in Finland; license number ESAVI-2331-04 10 07-2017.

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190 TIMING OF STEROID DOSES AND RESPONSE RATES TO IMMUNE-CHECKPOINT INHIBITORS IN METASTATIC CANCER

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Background Corticosteroids (CS) are the mainstay of immune-related adverse effect (irAE) management, as well as for other indications in cancer treatment. Previous studies evaluating whether CS affect immune checkpoint inhibitor (CPI) efficacy compared patients receiving steroids vs. no steroids.[1] This comparison may be confounded by different rates of irAEs, which are known to be associated with higher response rates to CPIs. Preclinically CS have been shown to diminish naïve T-cell proliferation and differentiation,[2] though there is a paucity of clinical data evaluating how the timing of concomitant CS affects CPI efficacy.

Methods We retrospectively collected data from patients treated with CPIs alone, who received CS during their CPI treatment at a single institution. Patients were allocated into two cohorts based on timing of initiation of CS (> 2 months vs. < 2 months after initiating CPI). Patient characteristics, irAEs, cancer type, treatment type, treatment response/progression per RECIST v1.1, and survival data were collected. Kaplan Meier and Cox proportional hazard regression methods were used to estimate hazard ratios (HR) for the primary endpoint of progression free survival (PFS) along with overall survival (OS).

Results We identified 247 patients with metastatic cancer who received CS concurrently with CPIs alone. The majority of patients had non-small cell lung cancer (n=98), followed by renal cell carcinoma (n=43), and melanoma (n=30). 242 patients were on PD-1 inhibitor monotherapy, while 45 patients received CPI in combination with anti-CTLA-4 ipilimumab (table 1). The median time on steroids for all patients was 1.8 months. After adjusting for differences in rates of treatment type, tumor type, brain metastases and irAEs, patients who were treated with CS > 2 months after starting CPI had a statistically significant longer progression free survival (PFS) [HR of 0.33, p≤0.0001], and overall survival (OS) [HR of 0.36, p≤0.0001] than those who received steroids < 2 months after starting CPI. Rates of irAEs in each group were not significantly different (p = 0.15). Objective response rate (ORR) for patients on CS > 2 months was 39.8%, vs. ORR for patients <2 months was 14.7% (p-value = <0.001).

Abstract 190 Table 1 Cancer subtypes and drug types in the study population (n=247)

Characteristics	<2 months	≥2 months	p-value
Cancer subtypes			
NSCLC	45 (45.92)	53 (54.08)	0.0395*
RCC	22 (51.16)	21 (48.84)	
Melanoma	19 (63.33)	11 (36.67)	
Urothelial	8 (57.14)	6 (42.86)	
HCC	4 (40.00)	6 (60.00)	
Small cell	15 (88.24)	2 (11.76)	
Other	16 (45.71)	19 (54.29)	
Drug			
Nivolumab	94 (55.95)	74 (44.05)	0.0531
Pembrolizumab	24 (39.34)	37 (60.66)	
Atezolizumab	9 (69.23)	4 (30.77)	
Durvalumab	1 (25.00)	3 (75.00)	
Ipi			
Ipi not received	96 (49.23)	99 (50.77)	0.0348
Ipi received	30 (66.67)	15 (33.33)	

*Statistically significant at 0.05

Conclusions After adjusting for possible confounding factors such as rates of irAEs, our results suggest that early use of steroids during CPI treatment significantly hinders CPI efficacy. These data need to be validated prospectively. Future studies should focus on the immune mechanisms by which CS affect T-cell function early in CPI treatment course.

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191 ASSOCIATION OF IMMUNE RELATED ADVERSE EVENTS WITH THE EFFICACY OF IMMUNE CHECKPOINT INHIBITORS IN METASTATIC RENAL CELL CARCINOMA

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Background Immune checkpoint inhibitors (ICI) are first-line therapy for tumors including metastatic renal cell carcinoma (mRCC). Use of ICI is complicated by diverse immune-related adverse events (irAEs), which can add significant morbidity but are also associated with improved efficacy of therapy.[1 2] Risk factors for development of irAE are still poorly understood. We hypothesized that patients with mRCC treated with ICI as first-line therapy have higher rates of developing irAE's than patients previously treated with other therapies.

Methods We conducted a single-institution, retrospective medical record review of patients with mRCC treated with immune-checkpoint inhibitors from March 2011 through April 15, 2020. We identified therapy duration, and presence, severity, and treatment of adverse events. We defined overall survival as time elapsed from date of diagnosis until death or until completion of study. We classified severity of adverse events according to CTCAE guidelines. Statistical methods included univariate