BACKGROUND

Immune checkpoint inhibitor (ICI)-based regimens including pembrolizumab/axitinib (P/A), nivolumab/cabozantinib (N/C), and nivolumab/ipilimumab (N/I) have improved outcomes in patients with RCC. While immune-related adverse events are a well-known complication contributing to treatment delays, discontinuation, and morbidity, little is reported on the incidence and outcomes of infections. This study aims to assess the incidence, risk factors, and outcomes of infections occurring in patients with RCC receiving ICIs.

METHODS

Data was collected from 7 hospitals for patients who received P/A, N/C, or N/I for RCC from 1/2017–8/2021. Date of last follow-up was 12/2022. Covariates compared among infected and non-infected cohorts included age, gender, race, comorbidities, and ECOG. Risk factors for infection were assessed by univariable analysis with reported odds ratio (OR) and 95% confidence interval (CI). Outcome measures included all-cause emergency department (ED) visits, inpatient, and intensive care unit (ICU) admissions, median number of ICI cycles, progression free survival (PFS) and overall survival (OS). OS/PFS were evaluated using the Kaplan-Meier model. P-value <0.05 was considered statistically significant.

RESULTS

There were 149 patients included; 54 (36.24%), 34 (22.82%), and 61 (40.94%) received P/A, N/C, N/I, respectively. At least one infection was documented in 51 (34.2%) patients, of which 18 (35.29%), 12 (23.53%), 21 (41.18%) received P/A, N/C, N/I, respectively. There was no statistically significant difference in infectious risk between the three regimens. ECOG >1 (OR 6.22, [95% CI 1.92, 19.73], p=0.002) was associated with higher risk of developing infections. Infected patients had a higher rate of ED (14 (27.45%) vs 13 (13.27%), p= 0.033), inpatient (40 (78.43%) vs 42 (42.86%), p<0.001), and ICU admissions (13 (25.49%) vs 2 (2.04%), p< 0.001) than non-infected, and trended toward both a shorter PFS (7.27 [95% CI 4.97–16.43] vs 11.5 [95% CI 6.23–36.33], p=0.36) and OS (9.97 [95% CI 5.5–32.53] vs not reached, p=0.10), respectively. Infections did not impact number of cycles received compared to non-infected (5 [1–15] vs 4 [1–16]), p=0.86. At last follow-up, there was a higher proportion of all-cause deaths in the infected vs non-infected cohort (28 [54.90%] vs 37 [37.76%], p=0.045); of these 17 (60.71%), 5 (17.86%), 5 (17.86%), and 1 (3.57%) died due to primary disease, infection, multiorgan failure, and ‘other’, respectively.

CONCLUSIONS

Infections in patients receiving ICIs for metastatic RCC are common and the risk is similar across regimens. Infections are associated with a higher hospitalization rate, all-cause mortality, and trend toward poorer survival. Strategies to minimize infectious processes to optimize outcomes are needed.

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