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Renal Manifestations in cancer patients treated with Immune Checkpoint Inhibitors

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Objectives : Immune Checkpoint Inhibitors (ICI) have emerged as a cornerstone in cancer therapy. However, they can induce various Immune-related-adverse-events including acute interstitial nephritis (AIN). In addition, there is a possibility that AKI might lead to the development and progression of CKD. A Better understanding of clinical manifestations, risk factors and prognosis is crucial.
Methods : We extracted the list of patients who underwent ICI therapy at Korea University Anam Hospital from 2015 to 2023. We analyzed the incidence and clinical manifestations of AKI as well as CKD progression in these patients, investigating independent risk factors for renal complications.
Results : Among 518 participants, 315 (60.8%) were male and the mean age was 62.2. During the 48 weeks of follow-up period, AKI occurred in 88 (17%) patients. Pre-renal, acute tubular necrosis (ATN) and post-renal causes accounted for 55%, 28% and 6% respectively. No case of biopsy-proven AIN was observed. There was no difference in the incidence rate of AKI according to different types of ICI including PDL1, PD1, and CTLA-4. Diuretics use (OR 2.605, P<0.01) was found to be an independent risk factor for AKI. CKD progression (defined as 30% decline in eGFR from baseline) occurred in 58 (11.2%) patients. Steroids (OR 0.464, P=0.016), and higher albumin (OR 0.232, P<0.01) were associated with a lower incidence of CKD progression. ARB (OR 2.312, P=0.049) and higher ALP (OR 1.006, P<0.01) were associated with an increased incidence rate.
Conclusions : Renal complications are commonly observed during ICI treatments. Although AIN is unique cause of AKI in these patients, the most common etiology of AKI was prerenal aggravated by diuretic use. Progressive CKD is also not uncommon in these patients and steroids, ARB, serum albumin and ALP might play important roles. Better understanding the risk factors for AKI as well as CKD progression is needed,

FIGURE1.jpg

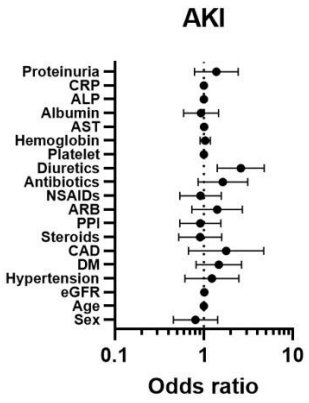

Figure 1. Forest plot of factors associated with AKI in ICI-treated patients.

FIGURE1.jpg

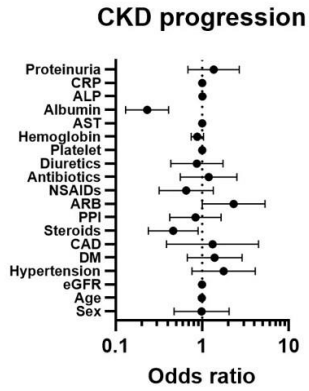

Figure 1. Forest plot of factors associated with CKD progression in ICI-treated patients.