Title: *A descriptive retrospective study of the management of patients with acute kidney injury during treatment with immune checkpoint inhibitors in a tertiary university hospital*

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Abstract:

Acute kidney injury (AKI) among patients receiving immune checkpoint inhibitors (ICIs) can bring some diagnostic challenges. We conducted a retrospective study to describe the management of patients with AKI during treatment with ICIs between 2016 and 2023, at our center, the Sherbrooke University Hospital Center, in Quebec, Canada. The selected sample consists of all cancer patients treated with ICIs who developed AKI, either during treatment or up to 6 months after its completion, and who had a nephrology consultation during the same time period.

A total of 28 patients met our inclusion and exclusion criteria. Among these, 19 were diagnosed with AKI at least partly induced by ICIs. The remaining 9 patients had AKI attributed to other causes. Only 5 patients underwent a kidney biopsy, and among these, 3 biopsies demonstrated acute tubulointerstitial nephritis attributed to ICIs. One biopsy showed severe arteriosclerosis. The other one demonstrated severe interstitial fibrosis and tubular atrophy. These chronic changes were nevertheless attributed to the ICI.

68% of the patients with ICI-induced AKI were treated with corticosteroids. Unfortunately, treatment was started more than 3 days after creatinine elevation for most patients (54%). ICI treatment was suspended in 20 of the 28 patients, including 16 of the 19 patients whose final diagnosis was ICI-induced AKI. Among these patients whose treatment was discontinued, 56% underwent rechallenge. No patient who underwent rechallenge experienced recurrence of AKI.

In conclusion, our study demonstrated a low rate of AKI recurrence among patients who were rechallenged. The study also revealed substantial heterogeneity in clinical practice. We believe more patients would benefits from a kidney biopsy to confirm the diagnosis and not delay the treatment. We hope the study will help provide evidence to support changes in clinical practice.