Acute Tubulointerstitial Nephritis and Secondary Renal Amyloidosis – A rare complication of Atezolizumab

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INTRODUCTION

Lung cancer, a leading cause of global cancer-related deaths, comprises small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC), with NSCLC being more prevalent. Treatment varies based on stage, patient health, and molecular markers. Curative strategies include surgery, chemotherapy, or radiation for stages I-III. Identifying targetable mutations is crucial for tailored treatment, including adjuvant tyrosine kinase inhibitors. Immune checkpoint inhibitors (ICIs) like Pembrolizumab and Atezolizumab, effective if PDL-1 expression is high, are integrated into treatment plans. Atezolizumab, combined with chemotherapy, shows promise in adjuvant settings. Despite efficacy, ICIs can cause immune-related adverse events. This report features a 70-year-old male developing drug-induced secondary amyloidosis after adjuvant Atezolizumab. Understanding potential side effects is vital for safe and informed cancer treatment.

CASE SUMMARY

We report a case of 70-year-old ex-smoker with comorbidities of hypertension and ischemic heart disease presented with hemoptysis and subsequently diagnosed with PDL-1 positive stage III-B adenocarcinoma of the lung. Treatment involved surgery, chemotherapy, and immunotherapy, showing a partial response but accompanied by significant side effects. Renal complications emerged during the course, revealing nephrotic range proteinuria and a biopsy indicating tubulo-interstitial nephritis, amyloidosis, and glomerulosclerosis. Steroid treatment temporarily improved renal function, but the patient later suffered from septicemia and multi-organ failure, ultimately leading to his demise. The case illuminates the intricate interplay between lung cancer, treatment responses, and severe therapy-induced complications, highlighting the importance of vigilant management and judicious consideration of therapeutic approaches in such complex cases.

DISCUSSION

This case describes an elderly male with lung adenocarcinoma (stage IIIb) treated with immune checkpoint inhibitors (ICIs) who experienced a positive treatment response but developed a rare side effect: secondary renal AA amyloidosis and tubulointerstitial nephritis. AA amyloidosis, an uncommon condition characterized by misfolded protein accumulation, typically arises in chronic inflammatory disorders. While interstitial nephritis is a recognized ICI side effect, AA amyloidosis in this context is unusual. PDL-1 expression in renal tubular epithelium might be linked to ICI-related kidney injury. Further comprehensive research is needed to elucidate the causes and treatment strategies for this uncommon manifestation.

CONCLUSION

Secondary amyloidosis not commonly occurs with Immune checkpoint inhibitors, so if patient develops kidney injury during or after treatment with immune checkpoint inhibitors should be further evaluated for this rare condition. Further larger studies are needed to elaborate the causes and treatment strategies for this uncommon manifestation.