Pediatric Nephrology (2022) 37:2217
https://doi.org/10.1007/s00467-022-05564-8

LETTER TO THE EDITORS

Focal segmental glomerulosclerosis recurrence in a young adult with kidney transplant after mRNA COVID-19 vaccination

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Received: 27 March 2022 / Accepted: 28 March 2022 / Published online: 29 April 2022

Dear editors,

We read with great interest the article by Crane et al. [1] regarding the immunologic response in several young adult kidney transplant (KT) recipients after mRNA SARS-CoV-2 vaccination. As the authors noted, adolescent KT recipients may have lower immunogenicity to the SARS-CoV-2 mRNA vaccines than the general population, possibly due to blunting of the immune response in solid organ transplant recipients. We wanted to increase awareness about another possible vaccine-induced immunologic response — the potential risk for disease recurrence in KT patients after vaccination against COVID-19.

Here, we report a case of a 21-year-old Hispanic male with a history of focal segmental glomerulosclerosis (FSGS) who underwent deceased donor KT at 13 years of age complicated by early disease recurrence requiring 6 months of plasmapheresis and rituximab therapy. He was then stable for the following 8 years, with serum creatinine 0.8 mg/dL and serum albumin 4.8 g/dL until 1 month after completion of mRNA COVID-19 two vaccination series when he presented with edema, nephrotic-range proteinuria (urine protein/creatinine ratio (UPCR) > 6.21 mg/mg with > 2500 mg/dL of protein), albumin of 1.7 g/dL, and peak sCr of 1.3 mg/dL. Kidney biopsy showed diffuse foot process effacement, concerning for recurrence of FSGS. He was treated with methylprednisolone, plasmapheresis, and rituximab (two 375 mg/m^2 doses). His nephrotic syndrome resolved after 4 weeks of plasmapheresis.

Now 10 months after recurrence, he remains in remission of nephrotic syndrome with a normal UPCR (0.18 mg/mg), sCr (0.66 mg/dL) and serum albumin (4.3 g/dL) on mycophenolate mofetil, tacrolimus (goal trough 4–6), and prednisone 5 mg daily.

While there are isolated reports of new onset or recurrence of proteinuric kidney disease after mRNA COVID-19 vaccine, to our knowledge, this is the first report of FSGS recurrence in a kidney transplant recipient after COVID-19 vaccination.

The pathogenesis of COVID-19 vaccine-related glomerular pathology remains poorly understood; though T-cells are hypothesized to play a prominent role given the rapid disease presentation in relationship to vaccine receipt [2]. Although causality is not proven, the temporal relationship of this case strongly suggests an association between vaccination and disease recurrence. While the risk–benefit ratio of COVID-19 vaccination for kidney transplant recipients remains favorable and vaccination is encouraged by national clinical guidelines [3], close monitoring for disease recurrence after vaccination in kidney transplant patients at risk is warranted.

Declarations

Conflict of interest The authors declare no competing interests.

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