## WCN24-2270

### COMPLEMENT SYSTEM IS OVERACTIVATED IN PATIENTS WITH IGA NEPHROPATHY AFTER COVID-19 INFECTION

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**Introduction:** Since the coronavirus disease of 2019 (COVID-19) pandemic swept across the world, the flare of immune-mediated disease following SARS-COV-2 infection has emerged rapidly. Previous studies have documented a growing number of cases of IgA nephropathy (IgAN) subsequent to COVID-19 infection. IgAN has been established as a complement mediated autoimmune disease. Nevertheless, the characteristics of clinical and immunological features in patients with IgAN after COVID-19 infection was scantily reported and merited further exploration.

**Methods:** From December 2022 to April 2023, 33 patients with renal biopsy-proven IgAN (Group A) at Beijing Anzhen hospital who had experienced COVID-19 infection before renal biopsy were enrolled. Meanwhile, 44 patients with IgAN (Group B) diagnosed from December 2018 to April 2019 (the same period in the previous year, with no COVID-19) were enrolled as control. Plasma FHR-5, MBL, C5a, soluble C5b-9, serum Gd-IgA1 and IgA immune complex were detected by enzymelinked immunosorbent assay. Glomerular staining for FHR-5, C3c, MAC and Gd-IgA1 were detected by immunofluorescence. SARS-COV-2 nucleocapsid and RNA in kidney biopsy was detected by immunohistochemistry.

Clinicopathological and immunological features between the two groups were analyzed.

**Results:** The median time between onset of COVID-19 symptoms and the time of renal biopsy was 12 (6, 18) weeks, ranging from 1 to 26 weeks. 30 (90.9%) had received COVID-19 vaccination before COVID-19 infection. Immunohistochemical investigation for SARS-COV-2 nucleocapsid antigen expression in the renal tubular epithelial cells were observed in 11 (33.3%) patients. Compared with Group B, the level of eGFR was significantly lower in Group A ($p=0.010$)). Histologically, compared with Group B, patients in IgAN in Group A presented with more percentages of segmental glomerulosclerosis/adhesion ($p=0.003$) and less percentages of mesangial hypercellularity ($p=0.017$). The level of plasma level of C5a ($p<0.001$), soluble C5b-9 ($p=0.018$), FHR5 ($p<0.001$) were significantly higher in Group A compared with Group B, respectively. Even the plasma level of MBL showed no differ in Group A and Group B ($p=0.318$), we found more patient in Group A presented with high level of MBL than in Group B ($p=0.025$). Compared with Group B, patients with IgAN in Group A presented with stronger intensity of MAC deposition ($p=0.246$). There were no significantly different in serum levels of IgA ($p=0.129$), Gd-IgA1 ($p=0.734$), IgA immune complex ($p=0.524$) between Group A and Group B. However, patients with IgAN in Group A exhibited a greater intensity of glomerular Gd-IgA1 deposition in glomerular mesangial and capillary areas than those in Group B ($p=0.005$).

**Conclusions:** The activation of the complement system was found to be heightened in individuals diagnosed with IgAN subsequent to a COVID-19 infection. Furthermore, the presence of pathogenic Gd-IgA1 deposits in the glomerular mesangial regions was observed to be more pronounced in IgAN patients with COVID-19 contracted compared to those without. It is plausible that the excessive activation of the complement system and the deposition of pathogenic Gd-IgA1may contribute to the progression of IgAN with COVID-19 infection.

I have no potential conflict of interest to disclose.

## WCN24-2356

### ACUTE KIDNEY INJURY FOLLOWING COVID-19 VACCINATION: A CASE SERIES

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**Introduction:** Kidney injury has already been reported as a result of immune response to several vaccines in various studies. However, reports of post-vaccine acute kidney injury have become relevant due to the COVID-19 pandemic and mass vaccination, despite being a rare event. This condition may arise either from the reactivation of a previous kidney disease or as an initial presentation, which can include collapsing glomerulopathy or acute tubular necrosis. The aim of this study is to present a case series detailing kidney injuries following COVID-19 vaccination and to outline the clinical characteristics of the patients.

**Methods:** This case series studied kidney injury onset in patients vaccinated for COVID-19. Between 2021 and 2022, 14 patients from different Brazilian states were included. Data collected included demographic and clinical characteristics, creatinine, urea, proteinuria, C3, and C4 levels, biopsy findings, immunization information and period of symptom presentation. Excel spreadsheets and the IBM SPSS software were used for data analysis.

**Results:** Data were collected from 14 patients, including eight women, with a mean age of $37.64 \pm 20.10$ years. Six of these patients had comorbidities, including hypertension ($n = 4$), chronic kidney disease ($n = 3$), and dyslipidemia ($n = 2$). Regarding vaccination, seven patients received AstraZeneca, five received Pfizer BioNTech, and two received CoronaVac. Symptom onset occurred after the first dose in eight participants, after the second dose in five, and after the third dose in one. Symptoms started on average $25.67 \pm 25.78$ days after immunization. Regarding clinical presentation, ten participants had nephrotic syndrome (three associated with acute kidney injury), two had nephritic syndrome, and two had rapidly progressive glomerulonephritis. Biopsy findings revealed collapsing glomerulopathy (with one case associated with thrombotic microangiopathy) and acute tubular necrosis in seven patients, pauci-immune crescentic glomerulonephritis (with one case associated with thrombotic microangiopathy and another with class IV lupus nephritis) in three, segmental and focal glomerulosclerosis in two, thrombotic microangiopathy in one, and IgA nephropathy in one patient. Most patients presented increased serum creatinine (of the 13 samples with information collected, median $= 2.56 \pm 4.67$, IQR $= 1.29–3.13$), and proteinuria was at nephrotic levels in nine of the ten patients undergoing the test (median $= 3{,}800 \pm 7{,}437$, IQR $= 2{,}025–9{,}456$). Of the nine patients tested for C3 and C4, two had increased levels, and three had hematuria. Only one patient was positive for antineutrophil cytoplasmic antibody and factor associated with N-SMase activation markers.

**Conclusions:** Mass immunizations against COVID-19 have raised concerns about a potential association between vaccination and the new onset or reactivation of kidney injury in some cases. Although the study did not establish a clear causal relationship, it noted a temporal connection between the clinical presentation of kidney disease and vaccination. Despite its rarity, kidney injury should be considered a potential adverse effect.

I have no potential conflict of interest to disclose.

## WCN24-2415

### COVID-19 AND KIDNEY HEALTH: ANALYZING THE IMPACT AND OUTCOMES OF ACUTE KIDNEY INJURY IN COVID-19 PATIENTS IN A PERUVIAN HOSPITAL

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