MO191

HUMORAL IMMUNE RESPONSE OF THE ADDITIONAL CHADOX1 NCOV-19 VACCINE FOLLOWING A TWO-DOSE INACTIVATED WHOLE-VIRUS SARS-COV-2 VACCINATION IN PATIENTS ON DIALYSIS

Rungthiwa Kitpermkiat[1], Jackrapong Bruminhent[2], Chavachol Setthaudom[3], Piyatida Chuengsaman[4], Sasisopin Kiertiburanakul[2], Kumthorn Malathum[2], Montira Assanatham[1], Arkom Nongnuch[1], Angsana Phuphuakrat[2], Pongsathon Chaumdee[5], Chitimaporn Janphram[6], Sansanee Thotsiri[6] and Sarinya Boongird[1]

[1]Division of Nephrology, Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, [2]Division of Infectious Diseases, Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, [3]Department of Pathology, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Immunology Laboratory, Bangkok, Thailand, [4]Banphaeo-Charoenkrung Peritoneal Dialysis Center, Banphaeo Dialysis Group, Banphaeo Hospital, Bangkok, Thailand, [5]Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, and [6]Somdech Phra Debaratana Medicine Center, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

BACKGROUND AND AIMS: Patients with end-stage kidney disease (ESKD) are at risk of coronavirus disease 2019 infection and its associated complications. A previous study demonstrated that patients with ESKD on dialysis generated suboptimal humoral immune response (HIR) and lower seroconversion rate after two-dose inactivated severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccination as compared to healthy individuals. In this study, we examined HIR of the additional dose of ChAdOx1 nCoV-19 vaccine following a standard two-dose inactivated whole-virus SARS-CoV-2 vaccination in patients on dialysis, and compared to those of healthy controls.

METHOD: We recruited 59 patients with ESKD [31 patients on haemodialysis (HD) and 28 on peritoneal dialysis (PD)) and 16 healthy controls who received two doses of inactivated SARS-CoV-2 vaccine (V2) from Ramathibodi hospital and Banphaeo General Hospital, Bangkok, Thailand, from July 2021 to September 2021. All participants were administered a third dose of the ChAdOx1nCoV-19 vaccine (V3) with a 6-week interval between the V2 to V3. HIR was measured 2 weeks after V2 and V3 using SARS-CoV-2 immunoglobulin G (IgG) assay, which detects antibodies against the S1 receptor-binding domain (RBD) of the SARS-CoV-2 spike protein. Median anti-RBD IgG titer and seroconversion rate, defined as anti-RBD IgG titre $\geq$ 7.1 BAU/mL, were compared among ESKD patients and to those of healthy controls using the Kruskal–Wallis H test and the chi-squared test, respectively.

RESULTS: Baseline characteristics of patients on HD, PD and healthy controls are shown in Table 1. Demographic characteristics and baseline laboratory parameters were comparable between the HD and PD groups, except for a lower mean serum albumin level in the PD group ($P < .001$). None of the healthy controls were immunocompromised or receiving immunosuppressive therapies.

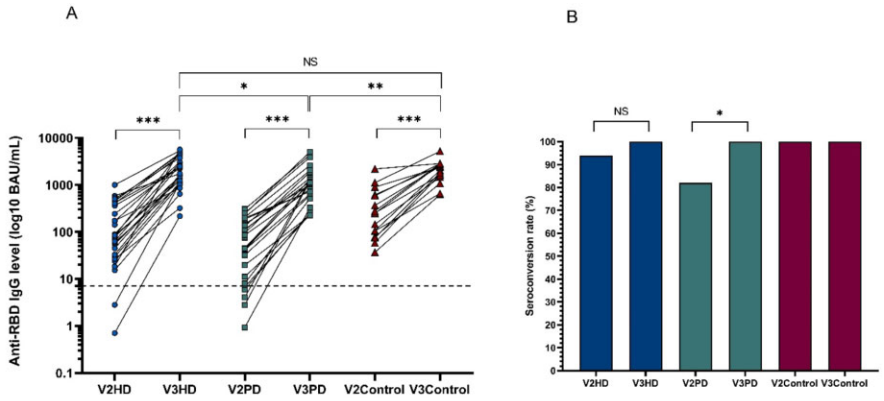
At 2 weeks after V3, the median anti-RBD IgG titres were significantly increased in all groups compared to those levels after V2 (85[33–412] versus 1566 [861–3083] BAU/mL for patients on HD, 81 [15–144] versus 913 [293–1359] BAU/mL for patients on PD and 250 [92–603] versus 2210 [1531–2782] BAU/mL for healthy controls; $P < .001$ for all groups). Comparing antibody levels between groups after V3, patients on PD generated significantly lower anti-RBD IgG titer than patients on HD ($P = .02$) and healthy controls ($P < .01$) (Figure 1A). The seroconversion rate of the HD and PD groups improved from 94% and 82% after V2 to 100% after V3 in both groups ($P = .16$ and $P = .03$, respectively) (Figure 1B). All patients on dialysis who had anti-RBD IgG < 7.1 BAU/mL after V2 (7/59 patients) seroconverted after the additional dose of ChAdOx1 nCoV-19 vaccine.

CONCLUSION: We suggest that an additional ChAdOx1 nCoV-19 vaccine after a primary two doses inactivated SARS-CoV-2 vaccination could improve seroconversion rate and magnitude of humoral immune response in patients on dialysis. The durability of the immune response to this vaccination regimen requires further study.

Table 1.

Clinical characteristics, n (%)	HD (n = 31)	PD (n = 28)	Controls (n = 16)
Age, years	45 (10)	41 (12)	41 (9)
Male, n (%)	23 (74)	17 (61)	5 (31)
Body mass index, kg/m^2	26 (5)	24 (4)	27 (6)
Charlson Comorbidity Index, median (IQR)	3 (3–5)	2.5 (2–4)	0
Comorbidities, n (%)			
Diabetes mellitus	14 (45)	7 (25)	1 (6)
Hypertension	24 (77)	25 (89)	2 (13)
Cardiovascular disease	7 (23)	2 (7)	0
Causes of ESKD, n (%)			NA
Diabetic nephropathy	6 (19)	5 (18)	
Hypertensive nephropathy	3 (10)	8 (29)	
Others	5 (16)	8 (29)	
Unknown	14 (45)	7 (25)	
Dialysis vintage, months, median (IQR)	33 (17–84)	34 (7–57)	NA
Total Kt/V_{urea}	1.6 (0.3)	2.0 (0.4)	NA
Laboratories			
White blood cells, $\times 10^9$/L	6.9 (1.9)	7.3 (2.8)	7.7 (2.4)
Absolute lymphocyte count, $\times 10^9$/L	1.6 (0.5)	1.5 (0.8)	2.2 (0.9)
Haemoglobin, g/dL	11 (2)	10 (2)	NA
Ferritin, ng/mL, median (IQR)	301 (119–441)	367 (156–751)	NA
Albumin, g/L	40 (4)	33 (4)*	NA

*$P < .05$.



*P<0.05, **P<0.01, ***P<0.001

MO192 **RENAL OUTCOMES IN HIGH DOSE CISPLATIN IN LOCALLY ADVANCED SQUAMOUS CELL CANCER OF THE HEAD AND NECK: A MONOCENTRIC EXPERIENCE**

Francesco Trevisani[1], Matteo Floris[2], Giulia Quattrini[1], Federico DI Marco[1], Nicola Lepori[2], Alessandra Cinque[3] and Aurora Mirabile[1]

[1]San Raffaele Hospital, Milano, Italy, [2]Brotzu Hospital, Cagliari, Italy, and [3]Biorek SRL, Milano, Italy

BACKGROUND AND AIMS: Head and neck cancer (HNC) represents the sixth most common neoplasm worldwide, accounting for 400 000 deaths globally every year. Among HNC, the squamous cell carcinoma (SCCHN) is the most aggressive histology, being responsible for more than 90% of cases. The overall 5-year survival rate goes from 33% to 68% according to risk factors and primary site.
In clinical practice, at least two cycles of three-weekly high-dose cisplatin (100 mg/m^2) concomitant to radiotherapy represents the standard of care given LA-SCCHN with a curative intent, both in postoperative and conservative settings.
However, concurrent high-dose cisplatin is associated with significant acute and late toxicities. Acute kidney injury (AKI) is a common and serious side effect of high-dose cisplatin-based concurrent chemoradiation (CRT). AKI is a predictor of immediate and long-term adverse outcomes. The aim of this study was to investigate the nephrotoxicity of chemotherapy in real life of LA-SCCHN patients during and after treatment with high-dose cisplatin-based CRT, with a particular focus on AKI onset.
METHOD: Ninety-three consecutive patients affected by LA-SCCHN and treated with high-dose cisplatin-based CRT were enrolled in a prospective observational monocentric study. All patients received adequate supportive care such as SF 750 mL + 16 mEq MgSO4 IV 200 mL/h before and after cisplatin administration (a total of 1500 mL at day 0 and again at day 1), with 375 mL mannitol 10% if diuresis after hydration was less than 100–200 mL/h and dexamethasone 12 mg IV as chemo premedication at day 0 and 8 mg PO at days 1 to 3 as antiemetic prophylaxis followed by 6 days of steroid progressive decalage. Demographic data, medical history, and clinical, laboratory and histological data at presentation were reported from the medical records. Serum creatinine was recorded at baseline and after each cycle of treatmentat day 1 and day 10, respectively. eGFR was calculated using CKD-EPI 2012 formula. Bayesian linear regression was used to evaluate the impact of the clinical and pathological features on eGFR decay through cycles and AKI incidence.
RESULTS: The cohort was composed of 93 patients with a median age of 59 years, M/F ratio 2.4, median BMI 24.9 (IQR: 22.3, 27.4), median eGFR 92.2 mL/min. A total of 58% of patients presented basal eGFR > 90 mL/min, while 42% <90 mL/min (only 4 patients with eGFR < 60 mL/min). Approximately 34.4% patients presented hypertension, and the 8.6% were diabetics.
AKI onset was 22.6% in the overall cohort: among those 21 patients who developed AKI, no one showed stage II-III AKI according to the KDIGO classification. Using a definition of AKI based only on an increase in serum creatinine > 1.5 higher than 1.5 times the baseline value, AKI incidence was 14% with a significative difference ($P = .04$) between patients with baseline eGFR > 90 mL/min and patients with eGFR < 90. Statistical analysis preformed using a logistic regression model showed a correlation between arterial hypertension and AKI incidence, while other comorbidities (such as diabetes) and concurrent medications were not associated with an increased in AKI incidence.
CONCLUSION: AKI was a common complication of high-dose cisplatin treatment in our LA-SCCHN patients' cohort (22.6%): interestingly, the totality of AKI cases was represented by stage I AKI. The main risk factor for AKI development was a diagnosis of arterial hypertensions (Figure 1), while no correlation with concomitant medications and diabetes was found. The overall AKI incidence in our cohort was lower than reported in previous Studies, likely due to the use of a preventive protocol based on hydration and mannitol use; among those patients who developed AKI, no modification in cisplatin treatment scheme were needed, particularly all the patients reached a cumulative cisplatin dose ≥200 mg/m^2.