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Letter to the Editor

LETTER TO THE EDITOR

Seroconversion after COVID-19 vaccine in a dialysis patient on immunosuppressants

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We report the case of seroconversion after coronavirus disease 2019 (COVID-19) vaccine in a patient receiving maintenance peritoneal dialysis.

A 53-year-old Caucasian woman started peritoneal dialysis in September 2020 after the failure of a cadaveric kidney transplant performed in 1996. A preserved residual renal function prompted initiation of incremental automatic peritoneal dialysis 4-days-per-week regimen. The aetiology of chronic kidney disease (CKD) was unknown and her medical history included multiple skin cancers, uterine fibroid, recurrent urinary tract infections and pancreatic serous cystadenoma. Anti-rejection immunosuppressive therapy was based on cyclosporin (Cys), steroid and azathioprine until November 2020. Afterward, the therapy was reduced to Cys (50 mg/day) and steroid (4 mg every other day).

On 12 January 2021, she underwent the first dose of COVID-19 vaccine using mRNA platform developed by Pfizer and BioNTech. A second dose was performed on 2 February 2021. She reported only injection-site pain lasting 24 h. Four weeks post-vaccination, anti-spike SARS-CoV-2 immunoglobulin G (IgG) titre was 48 UA/mL (cut-off, 13 UA/mL) using chemiluminescent immunoassay (CLIA) (Liaison®, DiaSorin). A series of blood test examinations, conducted soon after vaccination, showed a normal white blood cell count (5.7×10^9/L), serum albumin (3.5 g/dL), serum IgG (1124 mg/dL) and $CD4^+$ T-cells (480 mm^3). Recent weekly dialysis Kt/V was 2.83. Two-hour post-dose level of Cys measured 360 ng/mL; 6-month mean Cys trough level and 2-h post-dose Cys level were 45 and 376.5 ng/mL, respectively. Despite immunosuppressive therapy, she showed a normal response to hepatitis B virus vaccination. Coinciding with the vaccination, no clinically evident infections were reported, and immunosuppression therapy remained substantially unchanged. During the last year, the patient did not develop COVID-19 symptoms and previous screenings for COVID-19 resulted negative.

Vaccination is the best therapeutic intervention to reduce the burden of the dire consequences of COVID-19. It is widely known that age, organ transplant and CKD are the main risk factors for COVID-19-related death worldwide [1, 2]. Recently, the Council of the ERA-EDTA and the European Renal Association COVID-19 Database (ERACODA) Working Group have underlined that patients with advanced CKD have the highest risk of severe disease and death of any cohort once infected by SARS-CoV-2 [3]. This risk was particularly elevated in patients on renal replacement therapy [4–6]. As a result, a vast awareness campaign has been conducted to prioritize COVID-19 vaccination in CKD patients receiving dialysis treatment [7, 8]. This case showed that COVID-19 vaccine using mRNA platform [9] was effective in inducing seroconversion in a dialysis patient with a long-term maintenance immunosuppressive therapy. Her neutralizing antibody titre, albeit lower than that detected in local health care workers (generally >200 UI/mL using CLIA), confirmed IgG seroconversion against SARS-

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CoV-2 spike protein. This result enforces the efforts of the medical community to prioritize vaccination in patients receiving dialysis. Considering that successful vaccinations have been reported against other infectious diseases in dialysis patients, a proactive COVID-19 pro-vaccination approach is needed to face the medical nihilism of some national health policies, as well as to offer healthcare equity to this vulnerable group of patients.

The attenuate response to COVID-19 vaccine detected in this patient should serve as a stimulus to collect post-vaccination data on COVID-19 vaccine efficacy in preventing infection and transmission in dialysis patients. There is also an urgent need to evaluate vaccine-induced protection in certain dialysis patients with an impaired immune system due to the burden of prolonged immunosuppression to treat glomerulonephritis or prevent graft rejection. The answers to questions concerning the quantitative threshold of antibody titres to achieve adequate protection and the durability of seroconversion are still unknown, and well-designed studies will be required. In the meantime, further efforts should be made to offer the best immunization strategy for protecting our patients.

PATIENT CONSENT

The patient consented to publish these data anonymously.

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

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