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Therapeutic Apheresis and Dialysis

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LETTER TO THE EDITOR

Lethal Covid-19 in two vaccinated hemodialysis patients

Dear Editor

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccination is highly effective in general population. However, some concerns arise in immunosuppressed populations, such as dialysis patients [1]. Here we present two similar cases of coronavirus disease 2019 (Covid-19) in two hemodialysis patients who had received SARS-CoV2 vaccine (BNT162b2 BioNTech/Pfizer for both). After the onset of the symptoms, they died in few days due to acute respiratory failure.

CASE 1

An 83-year-old man in hemodialysis program was admitted due to low-grade fever (see Table 1). He had developed cough and asthenia 1 day before. Even he received SARS-CoV-2 vaccine in April 2021, a performed reverse transcription-polymerase chain reaction (Rt-PCR) resulted positive. As he had mild hypoxemia (oxygen partial pressure [pO2] 59 mmHg) and chest X-ray was normal, a pulmonary angiography was requested, showing a subsegmental pulmonary thromboembolism.

TABLE 1 Baseline characteristics, at-admission laboratory parameters, and computed tomography results in Covid-19 hemodialysis patients

	Case 1	Case 2
Gender	Male	Male
Age (years)	83	81
Hypertension	Yes	Yes
Dyslipidemia	Yes	Yes
Diabetes mellitus	Yes	No
Peripheral vascular disease	Yes, bilateral bypass	No
Pulmonary disease	Yes, chronic obstructive bronchopathy	No
Heart disease	No	Yes, coronary heart disease
CKD etiology	Diabetic kidney disease	Vascular
Dialysis vintage (months)	88	22
SARS-CoV-2 vaccine	BNT162b2 BioNTech/Pfizer in April 2021	BNT162b2 BioNTech/Pfizer in April 2021
At-admission lab values		
• pO2 (mmHg)	59	66
• D-dimer (μg/ml)	4.45	7.31
• C-reactive protein (mg/dl)	1.34	1.90
• Procalcitonin (ng/ml)	1.47	1.45
• Leukocyte count (/mm^3)	4.96	10.93
• Lymphocytes count (/mm^3)	0.72	0.45
Pulmonary angiography	Subsegmental pulmonary thromboembolism	Segmental pulmonary thromboembolism

Abbreviations: CKD, chronic kidney disease; pO2, oxygen partial pressure; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

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The patient was hospitalized with heparin and oxygen. In the first 48 h, he developed progressive dyspnea with more hypoxemia, so corticosteroids and antibiotics were started. Despite this, the patient's evolution was unfavorable, and he died 24 hours later.

CASE 2

An 81-year-old man in hemodialysis was admitted with fever, nausea, and vomiting for 12 h (see Table 1). An Rt-PCR demonstrated SARS-Cov-2 infection but in the absence of infiltrates in chest X-ray. Laboratory values revealed D-dimer elevation, so pulmonary angiography was performed, showing a segmental pulmonary thromboembolism. He was hospitalized with heparin and antibiotic therapy. Unfortunately, his evolution was poor, developing a mild unilateral pulmonary infiltrate in the following 24 h. Although corticosteroids and high flux oxygen were administered, he died 3 days after admission.

Our cases alert about the risk of Covid-19 in vaccinated hemodialysis patients. Although previous reports have shown that infections and vaccines [2, 3] could provide high protection against Covid-19 in hemodialysis patients, here we present two cases of acute respiratory failure resulting in death. These two cases have some interesting features. First, both patients had a clinical-radiological dissociation with no or very mild infiltrates but intense respiratory insufficiency (after 48 h, they needed a fraction of inspired oxygen of 1). Although both patients presented pulmonary thromboembolism, they immediately received systemic anticoagulation and their D-dimer decreased. Second, the prognosis was poor in the absence of at-admission classical predictors (lymphopenia, pulmonary infiltrates, elevation of acute phase reactants...). Third, we were not able to identify the usual two phases (viral and inflammatory) of Covid-19 in these patients as they presented pauci-symptomatic 2–4 days after they died.

In conclusion, these cases highlight the importance of maintaining the protection measures against SARS-CoV-2 in vaccinated population to avoid severe Covid-19, especially in vulnerable patients as those in hemodialysis.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

Borja Quiroga
Alicia Cabrera Cárdenas
Pablo Ruano

Nephrology Department, Hospital Universitario de la Princesa, Madrid, Spain

Correspondence
Borja Quiroga, Nephrology Department, Hospital Universitario de La Princesa, C/Diego de León 62, Madrid 28006, Spain.
Email: borjaqg@gmail.com

ORCID

Borja Quiroga https://orcid.org/0000-0001-5730-1929

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