DIALYSIS. HEALTH SERVICES RESEARCH

MO906 **ANTIBODY RESPONSE TO COVID-19 VACCINATION IN PATIENTS UNDER DIALYSIS**

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BACKGROUND AND AIMS: Patients (pts) with end-stage kidney disease (ESRD) may be more vulnerable to infections and may have a suboptimal response to vaccination. Dialysis patient (pt) began to be vaccinated against COVID-19 in February 2021. However, there were many doubts about whether immunization would be effective for them, as these pts have an impaired immune system, and it seems that this population responds poorly to vaccinations. Serum neutralizing antibodies (AbN) rapidly appear after the SARS-CoV-2 infection and the vaccination and are maintained for several months. The emergence of SARS-CoV-2 variants has raised concerns about the breadth of the neutralizing antibody responses.

METHOD: Serum samples were obtained from 181 patients receiving dialysis. Levels of circulating SARS-CoV-2 anti-spike IgG(S) and anti-nucleocapsid IgG (N) antibodies were quantified using the Abbott Diagnostics SARS-CoV-2 IgG chemiluminescent microparticle immunoassay (Abbott Diagnostics, Abbott Park, IL, USA) on an Abbott Diagnostics Architect i2000 SR and an Alinity analyzer, according to the manufacturer's instructions. Serum neutralizing antibodies (AbN) by commercially available assays (cPass SARS-CoV-2 Neutralization Antibody Detection Kit), at the first and the third months after the vaccination, were identified.

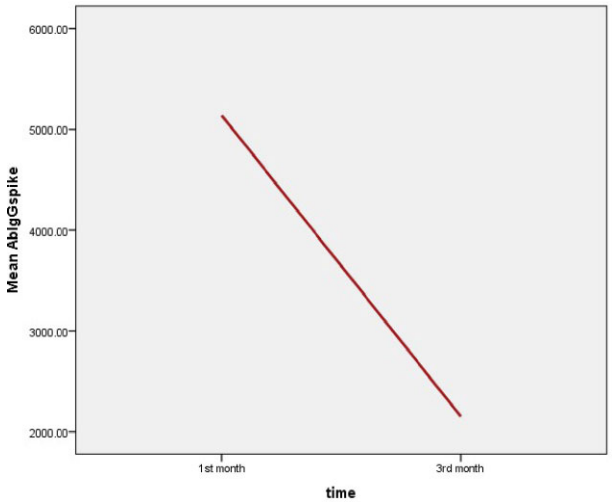
Table 1. Paired samples statistics

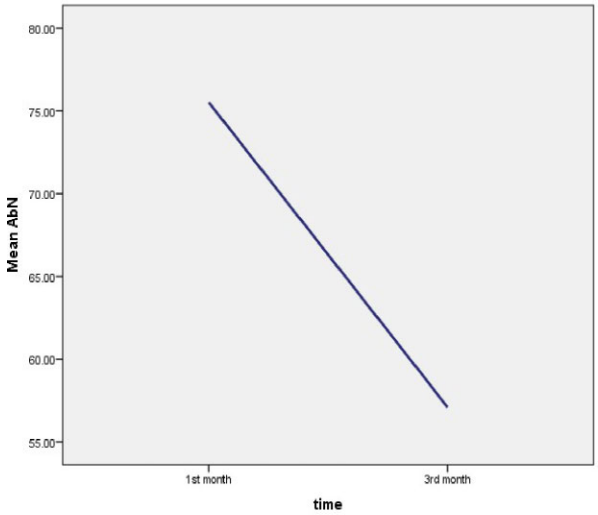
		Mean	*N*	Std. deviation	Std. error mean
Pair 1	AbN1	77.7373	153	24.17986	1.95483
	AbN3	57.0906	153	31.29075	2.52971
Pair 2	AbIgGspike1	5360.8569	144	6252.38034	521.03169
	AbIgGspike3	1670.8667	144	3814.62641	317.88553

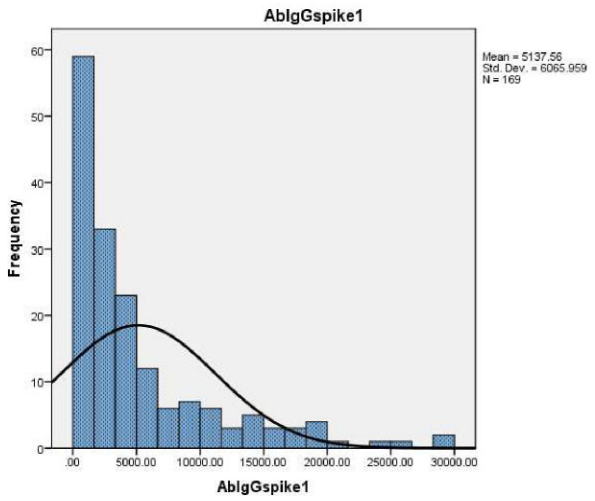
Comparison of neutralizers and antiSpikes between measurements 1 month and 3 months after vaccination (method: paired *t*-test).

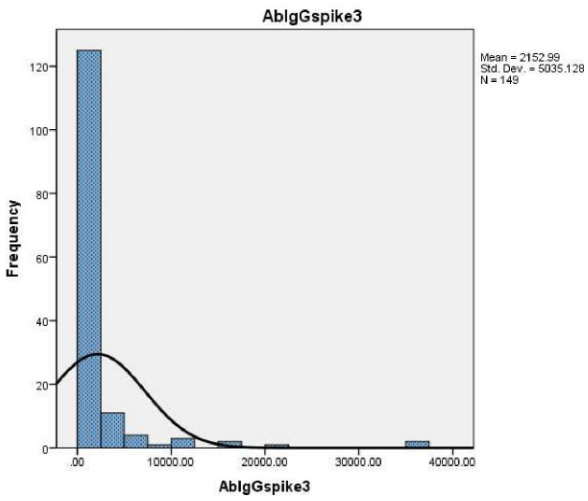
RESULTS: The IgG-spike Abs had a statistically significant decrease at 3 months after the vaccination in relation to the measurements 1 month after that.
AbN had a statistically significant decline at 3 months after the vaccination in relation to the measurements 1 month after. Pts with cardiovascular disease (CD) had significantly lower levels of antibodies than those who did not have CD. Additionally, CD was an aggravating factor in combination with the other comorbidities for the development of antibodies. Pts with a history of malignancy had significantly lower levels of antibodies in relation to those who did not. Those under therapy with antihistamines in the 1st month after the vaccination presented a statistically lower level of the AbNs, but this difference did not exist in the measurements 3 months after vaccination. There was a correlation between the AbNs and the age, also between the time these patients underwent dialysis. Those who had COVID-19 infection presented higher levels of the antibodies AbN/IgG-spiked Ab at 3 months.

CONCLUSION: It is presented that the IgG-spike Abs and the AbN had a statistically significant decrease at 3 months after the vaccination, which shows the importance of completing vaccination with the third dose after 3 months. Also, it is presented that CD is a risk factor for lower levels of Abs. Randomized clinical trials for COVID-19 vaccines included a few patients with kidney disease; therefore, the vaccine immunogenicity is uncertain in this population.


6000.00
5000.00
4000.00
3000.00
2000.00
Mean AblgGspike
1st month
3rd month
time


80.00
75.00
70.00
65.00
60.00
55.00
Mean AbN
1st month
3rd month
time


AblgGspike1
Mean = 5137.56
Std. Dev. = 6065.959
N = 169
Frequency
AblgGspike1


AblgGspike3
Mean = 2152.99
Std. Dev. = 5035.128
N = 149
Frequency
AblgGspike3