



# INCIDENCE OF ADVERSE EVENTS ASSOCIATED WITH SARS-COV2 VACCINATION IN PATIENTS WITH LUPUS NEPHRITIS AND ITS POTENTIAL EFFECT ON THE PROBABILITY OF DISEASE RELAPSE

AGGELIKI SARDELI<sup>1</sup>, DIMITRA PETROU<sup>1</sup>, SOPHIA FLOUDA<sup>2</sup>, SMARAGDI MARINAKI<sup>3</sup>, PELAGIA KRIKI<sup>4</sup>, KONSTANTINA KANTARTZI<sup>4</sup>, ALIKI VENETSANOPOULOU<sup>5</sup>, PARASKEVI VOULGARI<sup>5</sup>, MINAS KARAGIANNIS<sup>1</sup>, PETROS KALOGEROPOULOS<sup>1</sup>, STYLIANOS PANAGOUTSOS<sup>4</sup>, DIMITRIOS BOUMPAS<sup>2</sup>, IOANNIS N. BOLETIS<sup>3</sup>, SOPHIA LIONAKI<sup>1</sup>

1 Department of Nephrology, 2nd Propaedeutic Internal Medicine, Medical School, National and Kapodistrian University of Athens, Attikon University Hospital, Athens, Greece

2 Rheumatology and Clinical Immunology, Medical School, National and Kapodistrian University of Athens, Attikon University Hospital, Athens, Greece

3 Department of Nephrology and Renal Transplantation, Medical School, National and Kapodistrian University of Athens, General Hospital of Athens Laiko, Athens, Greece

4 Department of Nephrology, Medical School, Democritus University of Thrace, Alexandroupolis, Greece

5 Rheumatology Clinic, Department of Internal Medicine, Medical School, University of Ioannina, Ioannina, Greece

# SARS-CoV-2 vaccination

## ADVERSE EVENTS (AE)

### LOCAL

- Pain
- Swelling
- Tenderness
- Itching
- Skin Rash
- Allergic Reaction

### SYSTEMIC

- Headache
- Myalgias
- Arthralgias
- Fever
- Chills
- Weakness
- Diarrhea
- Nausea
- Lymphadenopathy

# Aim of the study

- Evaluate the frequency of AE from the SARS-CoV-2 vaccination in patients with diagnosed lupus nephritis (LN)
- Evaluate the most common AE in this group
- A possible effect of vaccination on kidney function of these patients
- Incidence of a LN relapse after vaccination

# Methods

## Retrospective Study

### Inclusive criteria:

- History of LN diagnosis
- Histologically confirmed LN
- At least one dose of SARS-CoV-2 vaccination

### Exclusive criteria:

- Patients with first LN diagnosis after vaccination
- Patients in ESKD before vaccination

# LUPUS NEPHRITIS

## Classification

- **Minimal mesangial LN (class I)** {normal urinalysis, no or minimal proteinuria, and a normal serum creatinine}
- **Mesangial proliferative LN (class II)** {microscopic hematuria and/or proteinuria}
- **Focal LN (class III)** {hematuria and proteinuria. Maybe hypertension, a decreased GFR, and/or nephrotic syndrome. Less than 50 % of glomeruli are affected}
- **Diffuse LN (class IV)** {the **most common** histologic pattern and **most severe**. Hematuria and proteinuria. Frequently nephrotic syndrome, hypertension, and reduced GFR. More than 50 % of glomeruli are affected.}
- **Lupus membranous nephropathy (class V)** {10-20 % of patients with LN. Nephrotic syndrome +/- hematuria and hypertension}
- **Advanced sclerosing LN (class VI)** {kidney dysfunction, proteinuria and a relatively bland urine sediment. Global sclerosis of more than 90 % of glomeruli}

# LUPUS NEPHRITIS: DEFINITIONS

## Remission:

- proteinuria  $<0.5\text{g}/24\text{h}$
- stabilization of  $\text{cr}_s$
- improved hematuria

## Relapse:

- Reappearance of hematuria, with or without red blood cells casts
- wbc in urine sediment without evidence of infection
- increased proteinuria
- impaired renal function (increase of serum creatinine)

## ESKD:

- $\text{eGFR} < 15\text{ml}/\text{min}/1.73\text{m}^2$ , dialysis

# Methods

## Retrospective, multicenter study

- Demographics
- Histopathological diagnosis of LN
- Immunosuppressive Regimens
  - Induction therapy
  - Maintenance therapy
- Outcomes (of LN)
- Vaccination type, number of doses and timing
- Adverse Events of vaccination  
(local or systemic)

- Potential effect on the clinical course of LN
- Laboratory test before and after vaccination
- Kidney function before and after vaccination

# Patients Characteristics

Parameter	Number of patients (N=90)
Age	31 ( $\pm 18$ )
Female sex	72 (80%)
Proliferative LN	68 (75%)
Remission with treatment	82 (91,8%)
Vaccinated patients	78 (86.7%)
Median number of doses	3
Median time from diagnosis to vaccination	59 (32-137) months
On immunosuppression at the time of vaccination	55 (70.5%)



# Immunosuppressive Regiments

Immunosuppression on vaccine (yes)	Number of patients (55/78)
Type of immunosuppression	
Cyclophosphamide	0
Glucocorticoids iv or p.os	17
Mycophenolate mofetil	37
Azathioprine	6
Rituximab	4

# Results

Parameter	Number of patients (%)
Systemic adverse reactions	30.5%
Local adverse reactions	36.1%
Relapse of LN	1,28 % (1 patient)
Time from vaccination to relapse	3 weeks (from 1 <sup>st</sup> dose)
<b>Worsening of SLE activity (after vaccine administration) - treatment-resistant</b>	<b>3,84 % (3 patients)</b>

# Results – Laboratory tests before and after vaccination

Parameter	Before vaccination	After vaccination	p-value
<b>Hb</b>	13.00	12.5	0.2
<b>WBC</b>	5900	6240	0.7
<b>Neutrophils</b>	3650	3860	0.9
<b>Lymphocytes</b>	1684	1682	0.74
<b>N/L ratio</b>	2.08	2.3	0.5
<b>Platelets</b>	244	247	0.9
<b>Serum creatinine</b>	0.8	0.8	0.63
<b>GFR</b>	99	96	0.1
<b>24hproteinuria</b>	155	200	0.37

# Conclusions

- SARS-CoV-2 vaccine in patients with LN appears to be safe
- AE didn't differ from those of the general population
- No effect on the likelihood of disease relapse for patients who had achieved remission
- No alteration in laboratory tests before and after vaccination
- No change in kidney function before and after vaccination

# Thank you

