patients who delivered LFD newborns had higher dose of prednisolone ($P=0.04$), and logistic regression analysis revealed cut-off value as 6.7 mg per day (Figure 2). The cases with preterm PROM also had higher dose of prednisolone ($P=0.01$), and logistic analysis revealed cut-off value as 5.0 mg per day (Figure 3).

Conclusion: Glucocorticoid is often used for CTD patients during pregnancy, however, CTD patients who were treated with continuing high dose of glucocorticoid during pregnancy had high risks for APOs such as preterm birth, low birth weight of newborns, preterm PROM. Our data indicated that the cut-off dose of prednisolone values of preterm birth, LFD, preterm PROM was 7.5 mg, 6.7 mg, 5.0 mg per day respectively. It is important for rheumatologists to pay much attention for these risk of glucocorticoid use to CTD patients who hope to conceive and to manage the disease activity with appropriate dose of glucocorticoid. Recently, many immunosuppressants including biologics have been reported to be available for the safety use during pregnancy, and might be helpful to reduce the risk of APOs by glucocorticoid use.

Figure 1. Logistic regression analysis for preterm birth (AUC=0.750, $P<0.01$, cut-off value=7.5mg/day)

Figure 2. Logistic regression analysis for preterm birth (AUC=0.644, $P=0.05$, cut-off value=6.7mg/day)

Figure 3. Logistic regression analysis for preterm birth (AUC=0.728, $P=0.04$, cut-off value=5.0mg/day)

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FRI0210

EVALUATION OF THE IMPACT OF ROUTINE MONITORING OF BLOOD HYDROXYCHLOROQUINE LEVELS ON ADHERENCE TO TREATMENT IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS

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Background: The usefulness of very low hydroxychloroquine (HCQ) blood levels to unmask severe non-adherence in patients with systemic lupus erythematosus (SLE) has been established, including in a recent prospective study. However, little is known on the individual impact of HCQ blood levels measurement.

Objectives: To assess the impact of HCQ blood levels measurements to detect patients with severe non-adherence and to assess its main causes.

Methods: Retrospective interviews about adherence to treatment were conducted by the same investigator in unselected consecutive SLE patients. Patients were classified as severely non-adherent (groups A and B) or not (group C). Group A included patients in whom the diagnosis of severe non-adherence was first made because of a blood HCQ level less than 200ng/ml at least once during follow-up, and group B because of the patient's acknowledgment of their complete interruption of HCQ treatment for at least one month. Mean HCQ blood levels were compared during the follow-up. The Medication Adherence Self-report Inventory scale (MASRI) was completed by each patient at the time of the interview (reflecting adherence in the last 30 days).

At the time of the interview	Group A (severe non adherence discovered by HCQ levels)	Group B (severe non adherence discovered by regular discussion)	Group C (not severely non-adherent)
	N=12	N=16	N=43
Duration of HCQ treatment (years), mean $\pm$ SD	6.2 $\pm$ 4.8	5.9 $\pm$ 3.1	6.4 $\pm$ 4.6
Nb of HCQ measurements, mean $\pm$ SD	9.8 $\pm$ 5.5 ¹	6.5 $\pm$ 3.7	6.0 $\pm$ 2.8
Mean HCQ levels during follow-up, mean $\pm$ SD	662 $\pm$ 260 ²	866 $\pm$ 229	965 $\pm$ 281
MASRI < 80%, n (%)	3 (25)	6 (38)	0 (0) ³

Results: 71 SLE patients who had a mean of 6.8 ($\pm$ 3.8) measurements of HCQ blood levels during a mean follow-up of 6.2 years ($\pm$ 4.3) were included (Table). Twenty-eight patients (39%) had been diagnosed at some point with severe non-adherence: 12 in group A and 16 in group B (6 (38%) of them also had - at least - one HCQ blood level <200 ng/ml following the recognition of non-adherence). Demographic characteristics were similar between groups ($p=NS$, data not show). After the diagnosis of severe non-adherence, the mean $\pm$ SD HCQ levels (including all the determinations of HCQ levels done before *versus* those done after this diagnosis) improved in Group A (from 232 $\pm$ 249 ng/ml to 761 $\pm$ 338 ng/ml; $p<0.005$) while they remained stable in Group B ($p=NS$). Non-acceptance of the disease was the leading cause of severe non-adherence to treatment in Group A (7 patients (58%) versus 2 patients in Group B (12.5%); $p=0.02$) while the boredom with chronic treatments was the main reported cause in Group B (9 patients (56%) versus 1 patient in Group A (8%); $p=0.02$).

Conclusion: We provide novel evidence that, in a real-life setting, HCQ blood level measurements are useful to diagnose severe non-adherence since 12 of 28 severely non-adherent patients were diagnosed because of HCQ levels. We confirm that discovering very low HCQ blood levels

leads to increase HCQ blood concentrations in the next samples after having stressed (and discussed!) the problem to the patient.

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HCQ: hydroxychloroquine; ¹⁻² : $p < 0.005$ versus Group C; ³ : $p < 0.0005$ versus A and B Groups; other p values were non-significant; p values were calculated by unpaired t-tests and Fisher's exact tests, as appropriate.

Disclosure of Interests: None declared

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FRI0211 A LOW AND PROMPTLY TAPERED STEROID REGIMEN CAN ACHIEVE EXCELLENT RESULTS IN LUPUS NEPHRITIS, WITH LESS ADVERSE EVENTS

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Background: The optimal use of glucocorticoids (GC) in lupus nephritis (LN) remains a topic of debate, especially the tapering protocol and the duration of treatment. To date, only one randomized controlled trial, MyLupus, has compared two oral prednisolone (P) regimens in LN (0.5 versus 1mg/kg/d) in addition to mycophenolic acid. Although non-inferiority was not proven, this study demonstrated a similar rate of renal response at 24 weeks, with fewer side-effects in the 0.5mg/kg/d group.

Objectives: To determine by a retrospective study the efficacy and the toxicity of an even lower P regimen (20mg/d), very promptly tapered to 5mg/d at week 12 and stopped as early as at week 52.

Methods: Data from the last 30 consecutive proliferative LN patients diagnosed at the Louvain Lupus Clinic (between 2015 and 2018) were reviewed retrospectively. In these patients, the 10 last consecutive patients received a low fixed dose of P (20mg/d) for 4 weeks, rapidly tapered as follows: 15mg/d for 2 weeks, 12.5mg/d for 2 weeks, 10mg/d for 2 weeks, 7.5mg/d for 2 weeks, 5mg/d for 3 months and 2.5mg/d for 6 months. GC were withdrawn at week 52. The baseline and the follow-up data of these 10 patients were compared to the 20 previous consecutive LN patients followed in the same center but given a standardized P dose of 0.5mg/kg/d. Both groups of patients received 750 mg methylprednisolone IV pulses on 3 consecutive days at baseline. The one-year renal response was defined by achieving a proteinuria target < 0.8g/d.

Results: Clinical (BMI, gender, age, mean serum creatinine, mean proteinuria, SLEDAI-2K, non-steroid immunosuppressants) and pathological (ISN/RPS class) characteristics did not differ at baseline between the two groups. As illustrated in the Table, the mean uP/C ratios measured at one year were similar, as were the percentages of patients who achieved the proteinuria target. Importantly, *Herpes zoster* infections were only observed in the higher P dose group, with the difference reaching almost statistical significance.

	High dose P 0.5mg/kg/d N=20	Low dose P 20mg/d; 5mg/d at w12 N=10	P value
Baseline BMI (kg/m ²), mean ± SD	22.8 ± 4.0	23.4 ± 3.4	0.72
Baseline cumulative IV MP (g), mean ± SD	2.5 ± 1.9	2.1 ± 0.5	0.57
Baseline dose of oral P (mg), mean ± SD	39.5 ± 15.7	20 ± 0	0.0006
Baseline uP/C (g/g), mean ± SD	3.01 ± 2.30	2.05 ± 1.72	0.25
Month 12 dose of oral P (mg), mean ± SD	8.0 ± 6.5	0.8 ± 1.7	0.002
Month 12 uP/C (g/g), mean ± SD	0.61 ± 0.78	0.72 ± 1.23	0.75
Month 12 uP/C target (<0.8g/g), n (%)	16 (80)	8 (80)	1.00
<i>Herpes zoster</i> during GC treatment, n (%)	6 (30)	0 (0)	0.07

Conclusion: In patients suffering from proliferative LN, an induction protocol with a low and rapidly tapered dose of P may be as effective as

higher dose regimen to achieve the proteinuria target at one year, with fewer *Herpes zoster* episodes. These results deserve to be confirmed in a controlled trial.

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BMI: body mass index; IV MP: intravenous methylprednisolone; P: prednisolone; uP/C: urine protein to creatinine ratio; P values were calculated by unpaired t-tests and Fisher's exact tests, as appropriate.

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FRI0212 USE OF 23-VALENT POLYSACCHARIDE PNEUMOCOCCAL VACCINE IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: THE RELATIONSHIP OF IMMUNOGENICITY WITH THERAPY

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Background: Immunization with pneumococcal vaccines is an important factor of the prevention of severe respiratory infections in patients with rheumatic diseases (RD). Vaccination in systemic lupus erythematosus (SLE) is designed to ensure the continuity of immunosuppressive therapy, reducing the risk of severe exacerbations and death, and is effective from a pharmaco-economical standpoint.

Objectives: Investigation of the immunogenicity of 23-valent polysaccharide pneumococcal vaccine (PPV-23) in patients with SLE, as well as the effect of immunosuppressive therapy on the vaccinal response.

Methods: 34 patients with a reliable diagnosis of SLE (30 women and 4 men aged 19 to 68 years) were included. The duration of the disease varied from 9 months to 20 years. At the time of vaccination, 3 patients had high, 4 – moderate, 22 – low disease activity, and 5 were in remission. Current therapy: 33 patients received glucocorticoids (GC) 5-30 mg/day in prednisolone equivalent, 27 – hydroxychloroquine, 17 – cytotoxic agents (CA) (7 – mycophenolate mofetil, 6 – methotrexate, 1 – mycophenolic acid, 3 – azathioprine, 2 – cyclophosphamide), 11 – biologics (BS): 5-rituximab (RTM), 6 – belimumab (BLM). RTM was administered in doses of 500-1000 mg every 6-12 months, BLM – from 400 to 720 mg every month. 0.5 ml of PPV-23 (1 dose) was administered subcutaneously. During the visits standard clinical and laboratory tests were performed, as well as determination of antibody (AB) to *S.pneumoniae* serum level with VaccZymeTMPCP Ig 2 sets (TheBindingSiteLtd, Birmingham, UK).

Results: 1 and 3 months after vaccination, most patients (82.4% and 96.7% respectively) had a significant (more than 2 times compared to baseline) increase of the concentration of AB to the *S. pneumoniae* cell wall polysaccharides. A year after the vaccination, 22 (64.7%) patients (responders) had a significant increase of the concentration of anti-pneumococcal AB. 12 (35.3%) patients were considered as non-responders, they did not have a significant increase of the AB level (table).

Table. Change of anti-pneumococcal antibody concentration in SLE patients during the first year after the vaccination (n=34).

	baseline	1 month	3 months	12 months
Antibody concentration mg/l	83.5 ^a	407.8 ^b	311.4 ^c	255.3 ^d
Me	(57.4; 117.4)	(195.5; 476.8)	(181.5; 423.8)	(109.6; 423.5)
(25;75 percentiles)				
responders		28	29	22
n		(82.4%)	(96.7%)	(64.7%)

p a-b=0,000002; p a-c=0,00009; p a-d=0,0002.

Among 11 patients receiving BS, a complete vaccinal response was observed much less frequently than in patients without these drugs, 36.4% and 78.3%, respectively, $p=0.04$.

In the group treated with RTM, the number of non-responders was greater than among patients receiving BLM (80% and 50%, respectively), but this difference is not significant, $p=0.6$.

The addition of CA to the treatment regimen did not have an additional negative effect on the vaccinal response.

Conclusion: Sufficient immunogenicity of PPV-23 was shown in patients with SLE, including those receiving combined immunosuppressive therapy.