

## Concurrent session 2: biomarkers from bench to bedside

### LO-004 FREQUENCY AND DETERMINANTS OF FLARE AND PERSISTENTLY ACTIVE DISEASE IN A LARGE MULTINATIONAL PROSPECTIVE LUPUS COHORT

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**Background** The current commonly used definitions of flare may not be able to capture patients with a persistently active disease (PAD) course. This study sought to identify the frequency and determinants of flare and PAD in an Asia-Pacific cohort.

**Methods** Data from Asia-Pacific SLE patients collected between 2013 and 2020 were included. Flare was assessed using the SELENA-SLEDAI flare index (SFI) and PAD was defined as a SLEDAI-2K score of >4, excluding serology, on >2 consecutive visits. Data from 2013 to 2015 were used to model flare and PAD in 2016 through logistic regression and model properties were tested for prediction of flare and PAD in 2020 using the data from 2017 to 2019.

**Results** During median 2.5 (1.0–5.1) years, 53.1% (2180/4106) of patients experienced at least one episode of flare (flare incidence 0.49 per patient-year). 1786 (43.5%) patients experienced PAD including 368 patients (9.0%) who did not achieve the definition of flare. In the predictive model for flare, being from a country with GDP < \$20,000, current smoking, prior mucocutaneous involvement, arthritis, nephritis and low complements were risk factors, and achieving low disease activity state (LLDAS) for ≥50% of follow-up time during the previous three years was a protective factor. Prior nephritis and higher time-adjusted SLEDAI score in the previous three years were predictors for subsequent PAD while spending ≥50% of follow-up time in LLDAS during the previous three years was protectively associated with PAD (table 1). The two models gave 72% and 83.8% correct prediction of flare and PAD in 2020, respectively.

**Conclusions** Both flare and PAD were common disease activity patterns in SLE, with 9% of patients having PAD that was not captured by the SFI definition. Our predictive models may help identify patients at high risk of flare or PAD and enable targeted interventions to achieve better outcomes.

**Abstract LO-004 Table 1** Multivariate logistic regression analysis for the predictors of flare and persistently active disease (PAD) in 2016 from the data of 2013–2015

Predictor variables	Flare		PAD		
	OR (95%CI)	P value	Predictor variables	OR (95%CI)	P value
GDP<20,000 USD	2.63 (1.73-4.01)	<0.0001			
Current smoker	2.35 (1.14-4.85)	0.021			
Nephritis*	3.14 (2.16-4.58)	<0.0001	Nephritis*	3.43 (2.34-5.02)	<0.0001
Arthritis*	2.22 (1.48-3.34)	<0.0001			
Mucocutaneous activity*	1.46 (1.03-2.08)	0.035			
Low complement*	2.19 (1.46-3.30)	<0.0001	Time-adjusted SLEDAI score <sup>#</sup>	1.42 (1.29-1.56)	<0.0001
Percent follow-up time spent in LLDAS≥50% <sup>#</sup>	0.54 (0.37-0.81)	0.002	Percent follow-up time spent in LLDAS≥50% <sup>#</sup>	0.42 (0.30-0.64)	<0.0001

\* Presented features between 2013 and 2015  
<sup>#</sup> Calculated for the duration from 2013 to 2015