Response to: 'Correspondence on 'Risk of systemic lupus erythematosus after immune thrombocytopenia and autoimmune haemolytic anaemia: a nationwide French study" by Maquet *et al*

We thank Maquet *et al*[1] for their interest on our article entitled 'Increased risk of systemic lupus erythematosus (SLE) in patients with autoimmune haemolytic anaemia (AIHA): a nationwide population-based cohort study'[2] and the article by Zhu *et al*[3] entitled 'Risk of systemic lupus erythematosus in patients with idiopathic thrombocytopenic purpura (ITP): a population-based cohort study'. The articles of us[2] and Zhu *et al*[3] studied the Taiwanese National Health Insurance Database and reported that patients with AIHA and patients with ITP have a higher risk of SLE, while Maquet *et al* found inconsistent results through their research.[1]

Maquet *et al*[1] used the French nationwide adult cohorts to evaluate the risk of SLE after incident ITP or AIHA. The subjects of the study were patients who had been included between 2009 and 2017 in FAITH and between 2012 and 2017 in AHEAD. In addition, their research also reported that the cumulative incidence of SLE stratified by age and sex. The study by Maquet *et al*[1] showed that patients diagnosed with primary ITP/AIHA had a low risk of SLE (<2%). However, they found that childbearing age of female patients with ITP and both male and female patients with AIHA aged between 18 and 45 years had a higher risk of SLE except in women of childbearing age (approximately 4.5%).

Given that previous studies conducted in Taiwan did not estimate cumulative incidences stratified by age and sex,[2 3] we, therefore, conducted the present study to compare the data between Taiwan and France. Using the 2003–2013 National Health Insurance Research Database, we identified patients with newly diagnosed ITP or AIHA from 2005 to 2008 from whole Taiwanese population. Patients who had a history of SLE, rheumatoid arthritis, Sjögren's syndrome, systemic sclerosis, vasculitis, thyroiditis, ankylosing spondylitis, inflammatory bowel disease, HIV and antiphospholipid syndrome were excluded. Follow-up started on the date of the first diagnosis of ITP/AIHA and ended at SLE occurrence, death, withdrawal from the National Insurance or end of the study (31 December 2013), whichever came first. To calculate 1-year and 5-year cumulative incidence, at-risk patients for calculation of 1-year and 5-year cumulative incidences only included those who were followed up for at least 1 year and 5 years, respectively. Finally, we identified 1352 patients with primary ITP (760 patients aged ≥18 years) and 265 patients with primary AIHA (241 patients aged ≥18 years) and calculated the 1-year and 5-year cumulative incidences of SLE (table 1). As shown in table 1, the 1-year/5-year cumulative incidences of SLE in adult patients with primary ITP (5.0%/10.7%) and adult patients with primary AIHA (11.6%/19.5%) in Taiwan were higher than in those in French ITP and AIHA cohorts (1.0%/1.9% and 0.5%/1.0%).[1] Consistent with French data, the cumulative incidences of SLE in Taiwanese adult patients with ITP/AIHA were higher in women than in men and were highest in the age group of 18–45 years (table 1). However, in our primary AIHA cohort, we found that the incidence of SLE was even higher in patients aged <18 years than in those aged 18–45 years.

There are four possible explanations for the higher incidences of SLE in Taiwanese patients with ITP/AIHA. First, the ethnic difference is the main factor. Taiwan and France belong to different regions, and diet, environment and genes all affect incidences of SLE. Second, compared with French adult cohorts, the proportions of women were higher in our adult ITP cohort (72.2% vs 55.1%) and AIHA cohort (59.8% vs 57.6%). Third, the definitions of ITP and AIHA were different between the studies in Taiwan and that in France. To minimise misclassification bias

Table 1 Cumulative incidence of systemic lupus erythematosus in patients newly diagnosed with primary immune thrombocytopenia and autoimmune haemolytic anaemia from 2005 to 2008 in Taiwan

	Primary ITP				Primary AIHA			
	1-year risk		5-year risk		1-year risk		5-year risk	
Patients	SLE/N	%	SLE/N	%	SLE/N	%	SLE/N	%
All	73/1352	5.4	131/1208	10.8	33/265	12.5	45/214	21.0
Women	64/861	7.4	114/774	14.7	32/162	19.8	43/135	31.9
Men	9/491	1.8	17/434	3.9	1/103	1.0	2/79	2.5
<18 years	28/457	6.1	50/448	11.2	5/24	20.8	8/24	33.3
Women	21/215	9.8	38/209	18.2	5/18	27.8	8/18	44.4
Men	7/242	2.9	12/239	5.0	0/6	0.0	0/6	0.0
All adults (≥18 years)	45/895	5.0	81/760	10.7	28/241	11.6	37/190	19.5
Women	43/646	6.7	76/565	13.5	27/144	18.8	35/117	29.9
Men	2/249	0.8	5/195	2.6	1/97	1.0	2/73	2.7
18–45 years	29/362	8.0	57/335	17.0	18/93	19.4	22/85	25.9
Women	28/285	9.8	53/267	19.9	17/67	25.4	21/62	33.9
Men	1/77	1.3	4/68	5.9	1/26	3.9	1/23	4.4
45–65 years	10/279	3.6	17/244	7.0	8/71	11.3	11/62	17.7
Women	10/214	4.7	17/190	9.0	8/44	18.2	10/39	25.6
Men	0/65	0.0	0/54	0.0	0/27	0.0	1/23	4.4
≥65 years	6/254	2.4	7/181	3.9	2/77	2.6	4/43	9.3
Women	5/147	3.4	6/108	5.6	2/33	6.1	4/16	25.0
Men	1/107	0.9	1/73	1.4	0/44	0.0	0/27	0.0

AIHA, autoimmune haemolytic anaemia; ITP, immune thrombocytopenia; SLE, systemic lupus erythematosus.

of ITP/AIHA, we only considered those who had an in-hospital diagnosis of ITP/AIHA as patients with ITP/AIHA. Therefore, patients with mild ITP/AIHA who did not require hospitalisation were not included. We assume that patients with severe ITP/AIHA may have higher incidences of SLE than patients with mild ITP/AIHA, leading to the high incidences of SLE in Taiwanese ITP/AIHA cohorts. Finally, the definition of SLE was different. In the study conducted by Maquet *et al*,[1] SLE was defined by the date of first in-hospital or chronic disease (the latter being encoded by general practitioners) M32 code of the international classification of disease, version 10 (ICD-10). However, the definition of SLE was defined as having at least one hospitalisation or three outpatient visits with a diagnosis of SLE (ICD-9 code of 710.0) in a year in the present study and prior two studies.[2 3]

In conclusion, this nationwide, population-based study consistently showed that the 1-year and 5-year cumulative incidences of SLE were higher in Taiwanese primary ITP/AIHA cohorts than French ITP/AIHA cohorts. In both Taiwanese and French adult primary ITP/AIHA cohorts, women aged between 18 and 45 years had the highest 1-year and 5-year risks of SLE. In Taiwanese AIHA cohort, the risk of SLE was particularly high in children (<18 years). Therefore, clinicians should pay more attention to survey features of SLE for incident patients with primary ITP and AIHA, particularly those of the aforementioned age and sex groups with higher risk, to avoid diagnosis delay and provide appropriate treatment in time.

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