Response to: 'Risk of systemic lupus erythematosus in patients with idiopathic thrombocytopenic purpura: a need for a more accurate control group?' by Mertz and Arnaud

We thank Dr Mertz and Arnaud¹ for their comments on our recent article in the *Annals of the Rheumatic Diseases* entitled 'Risk of systemic lupus erythematosus in patients with idiopathic thrombocytopenic purpura: a population-based cohort study'.² They raised the question about selection of control group and suggest a control group consisting of patients with other autoimmune diseases, such as autoimmune haemolytic anaemia (AIHA), Evans syndrome and thyroiditis, instead of using a standard control group.

We agree that many immune-mediated diseases or chronic infectious diseases might also be attributed to systemic lupus erythematosus (SLE).^{3,4} As Mertz and Arnaud¹ mentioned, previous studies had reported that SLE is associated with AIHA⁵ and autoimmune thyroid diseases.⁶ Sometimes, AIHA and idiopathic thrombocytopenic purpura (ITP) can coexist in patients with SLE.⁷ Therefore, we did not mean to compare the difference between ITP and other immune diseases, but simply ask the question: 'Is risk of SLE increased in patients with ITP, compared to non-ITP controls?'

To answer this question, which we think is more clinically relevant, we thus select the non-ITP general population as control. With regard to the control group selection, we have two strategies—negative or positive control. To compare with the normal or non-exposure group, a healthy population is the best 'negative exposure' control. In some cases, especially for drug comparative effectiveness study, an active comparator group is an example of a 'positive control'. This kind of control selection had been published in many previous studies with similar design.^{8,9}

We also agree that it will be interesting to compare different immune-mediated diseases on the risk of incidental SLE. Thus, we did additional analysis to respond to this comment (table 1). In the Taiwan National Insurance Database with data on one million individuals, we retrieved data on newly diagnosed Hashimoto's disease, Graves' disease, AIHA, ITP and a general population control. The outcome is the subsequent incidence of SLE. Briefly, we found that age-adjusted and sex-adjusted HR was 2.5 for ITP, 19 for AIHA, 7.3 for Hashimoto's thyroiditis and 1.6 for Graves' disease, compared with the general population.

In conclusion, patients with ITP, AIHA, Hashimoto's thyroiditis or Graves' diseases are all at a higher risk for subsequent incidental SLE.

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Table 1 Crude and age-adjusted and sex-adjusted incidence rate of SLE in the general control, ITP, Hashimoto's disease, Graves' disease and AIHA

Group	Person-months	SLE event	Crude incidence rate*	Age-adjusted and sex-adjusted incidence rate*
General control (n=14 303)	1 273 883	26	2.04	2.04
Graves' disease (n=7345)	650 005	23	3.54	3.30
Hashimoto's thyroiditis (n=1513)	118 482	12	10.13	15.01
AIHA (n=121)	6827	7	102.54	39.43
ITP (n=697)	53 382	28	52.45	52.60

For age-adjusted and sex-adjusted incidence rate, the weighting of standardisation was the age-sex distribution in the general control.

*Rate per 100 000 person-months.

AIHA, autoimmune haemolytic anaemia; ITP, idiopathic thrombocytopenic purpura; SLE, systemic lupus erythematosus.