

Bone health in patients with systemic lupus erythematosus

The association between systemic lupus erythematosus and other comorbidities has been extensively studied.^{1 2} Recently, an article written by Orsolini *et al* published in *Annals of the Rheumatic Diseases* commented that osteoporosis and fractures are frequently found in patients with systemic lupus erythematosus.³ Orsolini *et al*'s article is a timely one and provides the updated concepts to the readers. Some points are discussed here. A cohort study in South Korea conducted by Kim *et al* reported that the incidence of fractures was higher in patients with systemic lupus erythematosus than those with non-lupus (19 vs 6.5 per 1000 person-years).⁴ A cohort study in USA conducted by Tedeschi *et al* reported that the incidence of fractures was higher in the systemic lupus erythematosus group than comparison group (4.32 vs 2.4 per 1000 person-years).⁵ Both studies further confirm that patients with systemic lupus erythematosus are substantially at increased risk of fractures.

In order to support the Orsolini *et al*'s comments and to test the association between systemic lupus erythematosus and major osteoporotic fractures, a preliminary cohort study was performed using the 2005–2012 database of the Taiwan National Health Insurance Program with 23 million persons living in Taiwan.^{6 7} At the baseline, patients ≥ 40 years with a new diagnosis of systemic lupus erythematosus were selected as the systemic lupus erythematosus group. Patients ≥ 40 years without a diagnosis of systemic lupus erythematosus were identified as the non-lupus group. The main outcome was a new diagnosis of any major osteoporotic fractures including fractures of the spine, humerus, forearm, wrist and hip. **Table 1** showed that the incidence of major osteoporotic fractures was 1.78-fold higher in patients with systemic lupus erythematosus than the non-lupus group (1.63 vs 0.92 per 1000 person-years; 95% CI 1.27 to 2.51, $p < 0.001$), which was compatible with previous studies in South Korea and in USA showing that the systemic lupus erythematosus group had a higher incidence of fractures compared with the non-lupus group.^{4 5}

Falls and osteoporotic fractures are common and important public health issues. Both conditions place a serious burden on injured patients, with potential detriment to their life quality. Falls account for the most events of osteoporotic fractures. That is, the less the falls, the less the osteoporotic fractures. From a view of primary prevention, physicians who participate in care of patients with systemic lupus erythematosus should take into consideration the strategies on fall prevention. Therefore, the possibility of osteoporotic fractures might be further reduced among these high-risk patients. We agree with Orsolini *et al*'s comments that osteoporosis and fractures should be regarded as

relevant comorbidities in patients with systemic lupus erythematosus.³ Recommendations for the clinicians to prevent falls and osteoporotic fractures in patients with systemic lupus erythematosus are needed in future relevant guidelines.

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Table 1 Incidences of major osteoporotic fractures between systemic lupus erythematosus group and non-systemic lupus erythematosus group in patients ≥ 40 years in 2005–2012

Variable	Systemic lupus erythematosus				Non-systemic lupus erythematosus				Incidence rate ratio (95% CI)	P value
	N	Event	Person-years	Incidence	N	Event	Person-years	Incidence		
All	566	33	2021	1.63	306 866	21 218	2 314 298	0.92	1.78 (1.27 to 2.51)	<0.001

Incidence per 1000 person-years

*Incidence rate ratio: systemic lupus erythematosus versus non-systemic lupus erythematosus (95% CI).