Response to: ‘Correspondence on ‘Prevalence and clinical outcomes of COVID-19 in patients with autoimmune diseases: a systematic review and meta-analysis”’ by Lee

We thank Lee1 for his comments to our research article ‘Prevalence and clinical outcomes of COVID-19 in patients with autoimmune diseases: a systematic review and meta-analysis’.2

In our study, included patients were likely on glucocorticoids (GCs) for their underlying autoimmune diseases (ADs), not for COVID-19-associated pneumonia and cytokine release syndrome. Hence, our data suggested the possibility of harmful effects of chronic use of GCs on the risk of developing SARS-CoV-2 infection and severe COVID-19. We were unable to analyse the therapeutic effect of GCs in patients with ADs who developed COVID-19 pneumonia. As stated in the correspondence by Lee,1 a systematic review and meta-analysis demonstrated that administration of systemic GCs was associated with lower 28-day all-cause COVID-19 mortality compared with usual care or placebo.3 Conversely, another meta-analysis showed that systemic steroid therapy may not be effective for reducing mortality, duration of hospitalisation and period of viral shedding, suggesting that the efficacy and safety of therapeutic GC use for patients with COVID-19 is still controversial. As described in a previous correspondence by Gremese et al.,4 COVID-19-associated pneumonia might be attributed to not only hyperinflammation but also leucothrombosis, requiring future studies to understand the pathophysiology of COVID-19-associated pneumonia.

As Lee suggested in his comments, some studies demonstrated an association between disease activities of ADs and the use or dose of GCs.5 6 We agree that performing sensitivity analysis for disease activity is a good idea to adjust for confounding risk factors. Further investigations into the risk of COVID-19 in patients with active disease requiring GCs are needed because studies included in our analysis did not necessarily provide detailed data regarding disease activity.2

In our analysis, non-tumour necrosis factor (TNF) antagonists included biologics, which target various kinds of cytokines such as interleukin (IL)1, IL-6, IL-12/23, IL-23 and IL-17, and Janus kinase (JAK) inhibitors. We did not perform subgroup analysis or meta-regression analysis according to each medication because the numbers of COVID-19 cases treated with each medication were extremely limited or detailed data were unavailable. As Lee suggested, recent studies demonstrated tocilizumab or baricitinib, a selective inhibitor of JAK 1 and 2, may improve COVID-19 outcomes. To understand which type of non-TNF antagonists can contribute to decreased mortality in patients with COVID-19, a large-scale meta-analysis with updated data is necessary.

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