

Hydroxychloroquine is neutral in risk of chronic kidney disease in patients with systemic lupus erythematosus

With great interest, we read the lupus nephritis recommendations article by Fanouriakis *et al.*¹ The authors highlighted that hydroxychloroquine (HCQ) use is recommended for all lupus nephritis patients to reduce risk of kidney flares, end-stage kidney disease (ESKD) and death. The authors also recommended that a reduction of 50% HCQ dose in patients with glomerular filtration rate less than 30 mL/min.

We agree with the authors that HCQ is an important background therapy for all systemic lupus erythematosus (SLE) and lupus nephritis patients. However, the dose adjustment in patients with renal impairment should be more evidence-based. In the FDA (Food and Drug Administration) website (www.accessdata.fda.gov), information of 'range for renal clearance of unchanged drug was approximately 16% to 30% and did not correlate with creatinine clearance; therefore, a dosage adjustment is not required for patients with renal impairment' were disclosed.

Furthermore, previous studies had been debating on the effect of HCQ in chronic kidney diseases (CKD).^{2,3} Pokroy-Shapira *et al.*⁴ investigated 256 lupus patients for up to 25 years and found that HCQ use was negatively associated with risk of earlier CKD. We believed that evidence of HCQ in preventing ESKD and death, or even lupus nephritis flare were limited. Therefore, we designed a retrospective cohort study from population-based data set to examine the association using HCQ and their risk of subsequent CKD in patients with SLE.

In this study, we analysed Taiwan's National Health Insurance Research Database from 1997 to 2013, which provides a strongly reliable huge database and encompasses approximately 99.9% of the Taiwan population. A total of 2050 newly diagnosed SLE patients with ICD-9 (International Classification of Diseases, Ninth Revision) codes 710.0 between 2000 to 2012 were included. After excluding patients with prior CKD and HCQ never-users, a total of 783 SLE patients who had HCQ treatment that began at -90 and +365 days from diagnosis with SLE individuals were enrolled and divided into two groups according to their prescription coverage days. Group 1 had prescription of HCQ for less than 90 days, and group 2 had HCQ prescription for more than 90 days within 1 year. The baseline characteristics of both groups were comparable after 1:2 age/sex matching and 1:1 propensity-score matching on urbanisation, hospitalisation days, comorbidities and co-medications. The cumulative incidence rate of SLE was calculated for up to 14 years with Kaplan-Meier curves. The Cox proportional regression model was used to examine HR of developing subsequent CKD among two groups.

The results revealed that the cumulative incidence of CKD showed no significant difference between two groups (figure 1). After adjusting for age, urbanisation, length of hospital stays and possible confounders, the adjusted HR of developing CKD among the >90 days HCQ group was 1.295 (95% CI 0.395 to 4.247), compared with <90 days users, indicating no statistical difference.

In conclusion, our retrospective population-based cohort study showed that HCQ use in SLE patient is neutral in subsequent risk of CKD.

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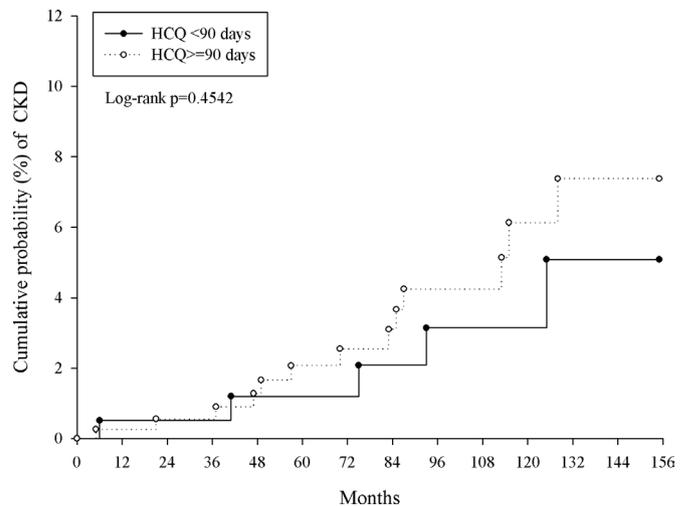


Figure 1 The comparisons of cumulative probability of CKD in systemic lupus erythematosus patients among two HCQ groups after propensity score matching. CKD, chronic kidney diseases; HCQ, hydroxychloroquine.

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