

analysis one patient in the black group had flare (14.2%) five in the intravenous administration had severe flares(8.1%) and were discontinued. During the evaluation ten had flares that were adjusted with steroids (eight articular or skin reactivation) and two with renal disease. On the five severe flares two required hospitalization. The mean time duration to achieve LLDAS was six months. Twenty seven achieved steroid free status and remained two patients on 2.5 mg and seventeen stable on daily 5.0 mg of prednisone.

**Conclusions** Using the LLDAS criteria response, it was possible to show that the majority of patients with active SLE on all three groups studied intravenous, subcutaneous and black race receiving belimumab for prolonged periods go into remission steroid free or in low disease activity in association with the correspondent immunosuppressive treatment.

**Funding Source(s):** Funding source Institutional and GSK.

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#### CLINICAL CHARACTERISTICS AND REMISSION OF PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS IN CHINA: RESULTS FROM SLE TREATMENT AND RESEARCH GROUP (CSTAR) REGISTRY WITH A REAL-TIME COLLECTING SYSTEM

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10.1136/lupus-2019-lsm.220

**Background** To develop a new system to study the real-world clinical characteristics and remission of systemic lupus erythematosus based on the first and largest registry cohort in China.

**Methods** Based on previous experience of CSTAR registry from 2009, a new online platform through mobile application program (APP) was designed to continuously collect real-time data during clinical practice with predesigned case report form. Baseline and follow-up data were directly collected by physician at clinic, uploaded via our APP and integrated into database for analysis immediately, including demography, clinical manifestations, disease activity (SLEDAI-2K), organ damage (SLICC Damage Index), lab results, imaging and medications. Biological samples were preserved for future study. Along with data collection, data cleaning and validation were managed by a professional backstage statistician to ensure quality.

**Results** A total of 13,699 SLE patients from 236 different centers have been registered up to December 2018. The male to female rate was 1:12 (1076/12,623). The average age at onset, at diagnosis and at enrollment were 30.7 y, 31.7 y and 35.5 y respectively. The top three involved organ systems at entry were lupus nephritis (36%), hematologic involvement (35.8%) and neuropsychiatric disorder (5.7%). In addition, 637 patients (4.6%) were found to be diagnosed with pulmonary arterial hypertension, and 166 patients (1.2%) had interstitial lung disease at baseline. The rate of clinical remission and complete remission at latest follow-up were 3.2% and 2.8%.

**Conclusions** CSTAR firstly built a direct online reporting and collecting system, which can continuously register and follow SLE patients all around China, giving us an opportunity to study the real-world conditions and provide the possibility to

apply Treat-To-Target strategy into daily practice for Chinese SLE patients

**Funding Source(s):** Chinese National Key Research R and D Program (2017YFC0907601, 2017YFC0907602, 2017YFC0907603), the Chinese National High Technology Research and Development Program, Ministry of Science and Technology (2012AA02A513) and the Chinese National Key Technology R and D Program, Ministry of Science and Technology (2008BAI59B02).

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#### META-ANALYSIS EXAMINING THE CLINICAL SIGNIFICANCE OF MONITORING OF HYDROXYCHLOROQUINE LEVELS IN SLE

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10.1136/lupus-2019-lsm.221

**Background** Despite the pivotal role hydroxychloroquine (HCQ) plays in treating SLE, less than 50% of patients take HCQ as prescribed. Non-adherence versus lack of effect to HCQ are difficult to distinguish, underscoring the importance of measuring HCQ blood levels to assess adherence. Despite this, information and consensus on the clinical impact of incorporating routine testing of HCQ blood levels is lacking. Therefore, we systematically reviewed publications examining the correlation between 1) HCQ levels and adherence, and 2) HCQ levels and SLEDAI scores, in SLE patients. We hypothesized that low HCQ levels would correlate with non-adherence and higher SLEDAI scores.

**Methods** A comprehensive search was performed using MeSH heading and keywords in Medline, Embase, CINHL and Web of Science databases. We selected observational and interventional studies that measured HCQ levels and assessed adherence and/or SLEDAI scores in adults with SLE. Newcastle Ottawa Scale and Cochrane Collaboration Risk Assessment tools were used to rate the quality of observational and intervention studies, respectively. We used Forest plots to compare pooled estimates (95% CI) of correlations between HCQ levels and patient or physician reported nonadherence and SLEDAI scores. Heterogeneity was assessed using I<sup>2</sup>.

**Results** From 306 manually reviewed studies, four studies analyzing correlation between HCQ levels and adherence, and five studies examining the correlation between SLEDAI and HCQ blood levels, met inclusion criteria. The odds of nonadherence measured by physician or reported by the patient was 3 times higher in patients with below threshold HCQ levels, compared to those with higher HCQ levels (OR 2.95, 95% CI 1.63, 5.35, p<0.001, I<sup>2</sup> 49%) (figure 1, panel A). The mean SLEDAI score was 3.33 points higher in groups with HCQ levels below threshold, but this trend was not statistically significant (3.33, 95% CI -0.60, 7.26, p=0.097, I<sup>2</sup> 99%) (figure 1, panel B). Risk of bias assessment revealed three poor quality studies which were excluded in sensitivity analysis which did not change results. Limitations of our analysis include study heterogeneity and lack of consensus on HCQ level interpretations.

**Conclusions** We found good correlation between HCQ levels and non-adherence. Low HCQ levels showed higher mean