Background and aims: Systemic Lupus Erythematosus (SLE) is an autoimmune disease involving in autoantibody production, immune complex deposition and complement activation. When the disease is active, the sequel can be devastating if inappropriately treated. The outcome of SLE patients can improve if sensitive biomarkers can identify the recent flare and lead the patients to receive the correct treatment in time. This study aimed to investigate whether serum levels of IL-6 and circulating immune complex (CIC) correlated with SLE disease activity and compared with anti-dsDNA and complement.

Methods: Ninety SLE patients followed up at Ramathibodi Hospital in 2015 were enrolled. The evaluation of disease activity achieved by Systemic Lupus Erythematosus Disease Activity Index (SLEDAI). The active disease defined if the scores were more than one. Serum IL-6 and CIC tested by ELISA.

Results: The level of serum IL-6 and CIC in SLE patients with active disease activity was significantly higher than the inactive disease [5.5 (1.6–99.30) pg/ml vs. 3.6 (1.5–35.1) pg/ml, p=0.011 and10.12 (2–131.22) RU/ml vs 2.1 (2.0–101.37) RU/ml, p=0.011, respectively]. The correlation analysis between serum biomarkers and clinical SLEDAI demonstrated that biomarkers significantly correlated with SLE activity are CIC (R=0.331, p=0.001) and IL-6 (R=0.313, p=0.011). CIC had the most area under the curve in discriminating active SLE than IL-6, anti-dsDNA, C4 and C3 (AUC=0.698, 0.677, 0.634, 0.410 and 0.393 respectively)