To estimate the SLEDAI (SLE disease activity index) and correlate serum levels of bioactivity markers as IL-10, IL-6 and TNF-á with the active form of disease

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Problem statement

Systemic lupus erythematosus (SLE) is a systemic autoimmune connective tissue disease more precisely a type III hypersensitivity reaction that can affect any part of the body. SLE is a disease of remissions and flares; a clinical activity index would enable standardisation of definition of flare and measurement of reduction in disease activity in response to treatment. Such scales could then be used to dictate the need for or response to treatment in clinical trials or to monitor the course of disease in longitudinal studies of outcome.

Aims and objectives

1) To describe the clinical features of patients presenting with SLE in a tertiary care hospital.

2) To estimate the degree of activity of the disease by calculating the SLE disease activity index {SLEDAI}score in SLE patients.

3) To correlate the disease activity (SLEDAI) with serum levels of important bioactivity markers including various cytokines.

4) To assess whether the serum levels of these activity markers can be used to diagnose the development of flares in these patients.

Methods

A total of 20 patients of age 16 years and above fulfilling the American College of Rheumatology revised criteria of classification (age group 16 to 40)The patients were subjected to thorough clinical examination and their clinical disease activity was assessed as SLEDAI under the guidance of an expert clinician. The SLE Disease Activity Index (SLEDAI) is an index or a validated model of experienced clinician's global assessment. The scale consists of 24 weighted attributes grouped in 9 domains called organ systems – central nervous system [8], vascular [8], renal [4], musculoskeletal [4], serosal [2], dermal [2], immunologic [2], constitutional [1] and haematological [1]. If during a 10 day period prior to assessment, a patient fulfils an attribute, then corresponding weighted score will be given. The sum of all weighted scores comprises final SLEDAI score. Final SLEDAI scores range between 0 to 105. Based on the score the patients were graded as having an inactive disease, mild /moderate/active flareUnder their full consent, 5 ml of blood sample was collected in an EDTA vial. They were immediately centrifuged and the sera were frozen into aliquots and stored at -20oC till analysing them for serum IL-6 , IL-10 and TNF áSamples from 20 healthy age, matched controls were taken for comparison of results.

Results

1. The patients with active form of disease and evident tissue damage have a SLEDAI higher than others and are characterized as those having an active flare.

2. Interleukin 6, and 10 and TNF alpha levels in all the studied patients were significantly increased as compared to control values.

3. A significant correlation was found between TNF á and SLEDAI and a relevant relation was also found between IL6 and SLEDAI.

4. IL 10 did not reveal any statistically or clinically significant correlation.

Systemic Lupus Erythematosus Disease Activity Index SELENA Modification

• Physicians Global Assessment

0	1	2	3
None	Mild	Med	Severe

SLEDAI Score

Wt Present Descriptor Definition

8 Seizure Recent onset. Exclude metabolic, infectious or drug cause.

8 Psychosis Altered ability to function in normal activity due to severe disturbance in the perception of reality. Include hallucinations, incoherence, marked loose associations, impoverished thought content, marked illogical thinking, bizarre, disorganized, or catatonic behavior. Excluded uremia and drug causes.

8 Organic Brain Syndrome Altered mental function with impaired orientation, memory or other intelligent function, with rapid onset fluctuating clinical features. Include clouding of consciousness with reduced capacity to focus, and inability to sustain attention to environment, plus at least two of the following: perceptual disturbance, incoherent speech, insomnia or daytime drowsiness, or increased or decreased psychomotor activity. Exclude metabolic, infectious or drug causes.

8 Visual Disturbance Retinal changes of SLE. Include cytoid bodies, retinal hemorrhages, serious exodate or hemorrhages in the choroids, or optic neuritis. Exclude hypertension, infection, or drug causes.

8 Cranial Nerve Disorder New onset of sensory or motor neuropathy involving cranial nerves.

8 Lupus Headache Severe persistent headache: may be migrainous, but must be nonresponsive to narcotic analgesia.

8 CVA New onset of cerebrovascular accident(s). Exclude arteriosclerosis.

8 Vasculitis Ulceration, gangrene, tender finger nodules, periungual, infarction, splinter hemorrhages, or biopsy or angiogram proof of vasculitis.

4 Arthritis More than 2 joints with pain and signs of inflammation (i.e. tenderness, swelling, or effusion).

4 Myositis Proximal muscle aching/weakness, associated with elevated creatine phosphokinase/ adolase or electromyogram changes or a biopsy showing myositis.

4 Urinary Casts Heme-granular or red blood cell casts.

4 Hematuria >5 red blood cells/high power field. Exclude stone, infection or other cause.

4 Proteinuria >0.5 gm/24 hours. New onset or recent increase of more than 0.5 gm/24 hours.

4 Pyuria >5 white blood cells/high power field. Exclude infection.

2 New Rash New onset or recurrence of inflammatory type rash.

2 Alopecia New onset or recurrence of abnormal, patchy or diffuse loss of hair.

2 Mucosal Ulcers New onset or recurrence of oral or nasal ulcerations.

2 Pleurisy Pleuritic chest pain with pleural rub or effusion, or pleural thickening.

2 Pericarditis Pericardial pain with at least 1 of the following: rub, effusion, or electrocardiogram confirmation.

2 Low Complement Decrease in CH50, C3, or C4 below the lower limit of normal for testing laboratory.

2 Increased DNA binding >25% binding by Farr assay or above normal range for testing laboratory.

1 Fever >38°C. Exclude infectious cause.

1 Thrombocytopenia <100,000 platelets/mm3.

1 Leukopenia <3,000 White blood cell/mm3. Exclude drug causes.

• Total score

(Sum of weights next to descriptors marked present)