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The Prevalence of Systemic Lupus Erythematosus (SLE) Flares During Covid 19 Quarantine Among Syrian Patients

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ABSTRACT

Objective: To determine if changes in depressive symptoms or anxiety lead to changes in the activity of systemic lupus erythematosus (SLE) during COVID 19 quarantine.

Participants and Methods: Twenty-eight patients with SLE were examined prospectively every 2 weeks for up to 8 weeks at the time of COVID 19 quarantine in Syria. At each assessment, (CES-D), Anxiety Inventory, patient's global assessment, physician global assessment, and the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) were done.

Results: Changes in depression and anxiety were positively correlated with simultaneous changes in the patient global assessment of SLE activity, but not with changes in the physician global assessment, SLEDAI. Depression and anxiety scores were also correlated with patient global assessments 2 weeks later, but lagged scores were not significantly associated with the patient global assessment after controlling for current depression and anxiety scores. No measure of SLE activity increased in the 2 weeks immediately after a large increase in CES-D or State Anxiety scores.

Conclusion: No evidence was found to support the hypothesis that psychological distress causes increased SLE activity.

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Introduction

SLE is a multisystem auto immune disease affects young women in particular , suffering from different symptoms related to many organs involvement such as central nervous system [1-3]. Lupus patients have a 50% chance of developing some form of psychological distress either of direct central nervous system involvement and its complications, or effects of treatment [4,5]. It is believed that stress can cause exacerbations of systemic lupus erythematous (SLE) with limited evidence supporting this association [6]. There is multiple mechanisms affect lupus pathology because of every day and lifetime stress which is clinically manifested as major depressive disorder (MDD), specific phobias, panic disorder, obsessive-compulsive disorder, and bipolar I disorder [7, 8].

Depression in lupus is due to many factors such as neurological damage, socioeconomic status, presence of rashes, and the concentration of certain cytokines, and factors associated with socioeconomic status [9, 10]. These findings mean that the depression and anxiety in lupus is mediated through a mixture of biological, socio-economic, and environmental contributors. SLE depression may result from both the involvement of the nervous system and the suffering due to pain and disability, varying according to many factors such as age, disease activity, weight, fatigue, sleep, and physical activity [11-13].

Many studies showed an associations between measures of anxiety, depression or psychological distress and measures of SLE activity and some studies found no association was between laboratory measures of SLE activity and psychological distress [14-20]. However, these studies could not determine if active SLE leads patients to be more depressed or anxious or psychological distress leads to increased SLE activity [21, 22].

The outbreak of coronavirus disease 2019 (COVID-19) may be stressful for people. Fear and anxiety about a disease can be overwhelming and cause strong emotions in adults and children because of worry about the own health and the health of your loved ones, changes in sleep or eating pattern, worsening of mental health conditions, and increased use of alcohol, tobacco, or other drugs [23-26].

We examined the association between changes in depressive symptoms and anxiety and changes in SLE activity, measured by physician and patient self-assessments, and standardized quantitative measures during COVID- 19 quatrain.

Participants and Methods

Patients

Twenty eight SLE patients, whom signed the informed consent, were participated in this study from the out and in hospital of Al-Moussat University Hospital classified according to American College of Rheumatology (ACR) criteria of SLE, with determination of the clinical evidence of activity by a rheumatologist for regular follow-up appointments [27].

The sample size was calculated as convenient sample, fifty SLE patients were examined at the hospital during a period of one year so as before the sample size will be 44 patients.

The study protocol was approved by the ethics committee at the faculty of medicine, Damascus University.

Study Protocol

Assessments of the participants were carried out at intervals of 2 weeks and lasted for up to 8weeks. At each assessment, patients completed a questionnaire about their symptoms and current medications used, provided a medical history, had a physical examination and underwent laboratory testing.

The questionnaire was designed on the Depression scale (CES-D) and Anxiety Inventory [28, 29]. The CES-D asks about the frequency of depressive thoughts and feelings in the previous week and setting up scores from 0 to 60. Higher scores indicate more depressive symptoms with exclusion of questions related more to somatic problems than psychological problems in patients with rheumatic diseases [30]. The Anxiety Inventory asks about the intensity of current feelings of anxiety, nervousness or tension, ranging from 20 to 80, higher scores indicating greater anxiety. In addition to completing these scales, visual analogue scale (VAS) 0=not active and 100=extremely active) [31].

SLE activity was assessed by the same rheumatologist using the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) assesses 16 clinical manifestations and eight laboratory measures (possible range 0–105) (26),with validation of it according to many studies [32,33]. Higher scores on each measure indicate more active SLE.

Statistical Analysis

All analyses were performed using SPSS 23programs (Statistical Analysis Systems, Cary, NC, USA).calculating correlations over time between measures using t-test, and Fisher test and the assessments provided sufficient statistical power (β=0.20; α=0.05 two-tailed) to detect correlations of 0.10 or larger as statistically significant.

Results

Twenty eight (24 women and 4 men) participated in the study (table 1). Baseline SLE activity score indicated mild to moderate SLE activity and scores on the CES-D score, and Anxiety scale indicated moderate depressive symptoms and anxiety at study entry without the presence of clinical symptoms central nervous system involvement as shown in tables 1 and 2.

Table 1: Characteristics of the patients

Gender	Number	%
Males	24	85.7
Females	4	14.3

Table 2: Mean age and duration of Lupus among patients

Mean Age (years)	43.9 ± 13.7
Duration of Lupus (years)	4.1 ± 3.8

Table 3: Baseline scores

Patient global assessment (0−100)	29 ±17
Physician global assessment (0−100)	10.9 ± 2.5
SLEDAI	5.9 ± 3.1

The CES-D and Anxiety scores changed more than 52% of their baseline values in 24 patients (85, 71%) and 50% in 4 patients respectively. The median change in the CES-D during the study was 18 points (range from 5–40) and the median change in the Anxiety scale was 24 points (range from 3–40), which means that patients experienced substantial changes in psychological distress during the study. Scores on the patient global assessment, physician global assessment, and SLEDAI changed more than 55% of their baseline values in 19patients (67, 85%), 22 patients (87%), and 23 patients respectively.

For these measures, the median within-patient changes (ranges) were as follows: patient global assessment 47 (18–81). physician global assessment 28 (6–58); and SLEDAI 9 (0–23).Scores on the CES-D was significantly correlated with simultaneous changes in patients' global assessments of their SLE activity, and was not significantly correlated with physician global assessment or SLEDAI. Anxiety scales was significantly correlated with simultaneous changes in patients' global assessments of their SLE activity, but not with physician global assessment or SLEDAI.

After 2 weeks later, Scores on the CES-D and State Anxiety scale were significantly correlated with patients' global assessments indicating that psychological distress may lead to greater symptoms, but not with physician global assessment, and SLEDAI. The scores on the CES-D (β=0.02; P=0.79) were non-significant with the patient global assessment comparing with the current CES-D scores (β=0.41; P=0.002).

Scores on the Anxiety scale (β=0.04; P=0.81) were not associated with the patient global assessment comparing with current Anxiety scale scores (β=0.61 P<0.0002). These findings indicate that these parameters do not predict changes in the patient global assessment. Analyses of these scores after 4 weeks demonstrated associations that were weaker than those in week 2.

The mean increase in CES-D score was 14.8 (range 5–40) after 2 weeks, was not followed by worsening SLE activity. On the other side, patients' global assessments of SLE activity were decreased by a mean of 10.9 points (on a 0–100 scale) in the week 2, showing that patients feel that they had less active disease, and physicians' global assessments decreased by a mean of 4.9 points (on a 0–100 scale) over these intervals. There were no significant changes in the SLEDAI following the increases in depression scale scores nor in the Anxiety score (mean increase 16.1; range 5–26).

Discussion

Changing in the symptoms of depression and anxiety with patients' assessments of SLE activity, did not predict future changes in their global assessments, and did not followed by worsening of patients' assessment of SLE, and that may due to that the symptoms were not sustained enough to the week 2, or fluctuated rapidly.Depression

and anxiety didn't correlate with current SLE activity as assessed by the physician or by SLADIA score which provides additional evidence that the psychological distress does not influence SLE activity. M. M. Ward et al. reported that depression and anxiety scores parallel changes in patients' assessments of the activity of their SLE. We found no evidence to support the hypothesis that psychological distress causes increased SLE activity [34].Adams et al., also reported associations between depression and anxiety worsening in patient-reported symptoms, but did not include other measures or observers [35].

The study by Pawlak CR, et al. suggests that psychological stress is associated with flares in SLE. Particularly daily stress with social relationships and social duties may be factors to be related to the course of disease activity in SLE,but this difference with our study maybe due to using different parameters and scores in his study [36].

The study by K Nishimura et al. indicated that depression presents more frequently in corticosteroid-naive patients with early-stage, active SLE than in the normal population, but anxiety does not. Depression may be related to psychological reactions to suffering from the disease, which is controversial with this study [37]. Margarida Figueiredo-Bragaet et al. found that both physical and social/psychological aspects likely contribute to the depression and anxiety in lupus [38].

SLEDAI does not rate fatigue, which may be one of the major symptoms that worsens with increased depression and anxiety in patients with SLE , and the correlation with SLAM was seen in M.M. Ward study [39]. No evidence was found to support the hypothesis that psychological distress causes increasing in SLE activity.

Limitation and weakness points of the study

The small number of patients (sample size), and may be with large number we will have different correlations between parameters and scores. The study used only one standardized measures of SLE activity to determine if any associations with the CES-D or Anxiety scale, although, most of the previous studies used more than one to see if each of these standardized measures demonstrated similar associations.

Patients may differ in their response to psychological distress, so the patient differs with a bias, plus none of our patients had brain damage or CNS flare because of SLE clinically.

-May be if this study used SLAM score (34) which contains depression measurement, the study would have different results about the correlation of CES-D and Anxiety scores
In addition, stress may cause worsening of SLE activity alone, but the study didn't detect that.

Conflict of interest: None

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