COPING STYLES AND DEPRESSION IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS AND RHEUMATOID ARTHRITIS

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Study objectives. Systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA) are chronic auto-immune rheumatic diseases associated with higher rates of depression than occur in the general population. The objectives of this study were to examine the extent of depression in a South African sample of patients with SLE and RA, and to examine the role of coping styles, life stress, disease activity and demographic variables in predicting depression.

Subjects and methods. The subjects consisted of 51 consecutive SLE and 19 consecutive RA patients attending the rheumatology clinic at Tygerberg Hospital, Cape Town. Depression was measured by the Zung Self-Rating Scale for Depression, coping styles by the Medical Coping Modes Questionnaire, life stress by the Life Event Scale, and disease activity by the Lupus Activity Criteria Count.

Results. Depression was present in 35% of the SLE patients and in 32% of the RA patients. Because SLE and RA patients did not differ significantly with regard to depression scores, the two groups were combined for statistical purposes. Multiple regression analysis indicated that an acceptance-resignation coping mode and high life stress were significant independent predictors of depression.

Conclusions. The results imply that psychotherapeutic assistance to cope with stress can enhance the quality of life of patients with auto-immune rheumatic disease. Interventions aimed at changing a passive, acceptant mode of coping with their illness to a more active, problem-solving coping mode could have a beneficial effect on depressive symptoms in these patients.

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Depressed mood is common in patients with chronic illnesses.[1,2] Systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA) are chronic auto-immune rheumatic diseases associated with higher rates of depression than occur in normal subjects.[3,4] SLE, a multi-system auto-immune disease that is sometimes life-threatening,[3] affects the skin, mucous membranes, bones, joints, cardiovascular system, lungs, kidneys, blood and central nervous system (CNS).[5-7] SLE patients have higher psychological morbidity than the general population.[8] Depression and adjustment disorders are the most common mental disorders.[9,10] The disease may lead to fear of death, fear of increasing disability and loss of physical and social functioning.[11] In South Africa, SLE is especially prevalent among coloured women in the Cape Peninsula.[12] RA is similar to SLE with regard to pathology, gender distribution and treatment,[13,14] and depression is a frequent concomitant.[15,16] RA, like SLE, is associated with chronic pain and functional impairment. In contrast to SLE, however, RA virtually never involves the CNS directly[14,17] and is non-fatal.

There are various possible reasons for depressed mood in SLE and RA patients.[18,19] Chronic pain, impaired functioning and physical disfigurement are often prominent in rheumatic diseases, and can clearly exert a negative influence on patients' mood states. For example, inability to perform valued activities was related to depressive symptoms in RA patients.[16] The fact that SLE has an unpredictable course with periods of disease activity alternating with near normalcy often results in psychological distress, anxiety and depression.[6,20] Corticosteroid therapy, which is frequently used in persons with auto-immune disease, may also affect mood.[10]

In SLE (but not in RA), depression may conceivably result from auto-immune activity in the CNS.[10] Psychiatric morbidity in SLE has not been associated significantly with severity of laboratory markers of disease activity[10] or cerebral magnetic resonance imaging and proton magnetic resonance spectroscopy.[21] However, frontal lobe hypoperfusion demonstrated by cerebral single photon emission computed tomography occurred in three depressed patients with SLE, while patients whose depression had remitted showed no hypoperfusion.[22] The role of CNS factors in the genesis of depression in SLE, however, remains uncertain. Other factors not related to the disease process may also play a role. Two such factors are other life stress and the inability to effectively cope with stressors.

SLE patients were found to have more current life stress than the general population.[8] In a study by Wekking *et al.*,[23] severity of depression was positively related to the number and intensity of daily stressors in SLE patients, suggesting a direct relationship between stressful life events and depression.[2] Hay *et al.*[24] found that SLE patients with and those without psychiatric problems did not differ with regard to disease activity, but that social stress was the best predictor of psychiatric morbidity.

Depressive symptoms may occur when a person cannot effectively cope with stressful situations.[25] Active-behavioural and problem-focused coping are moderators, while emotion-focused coping and avoidance are enhancers in the stress-symptoms relationship.[26] Feifel *et al.*[27,28] described three independent mechanisms used by medical patients to cope with their illness, namely confrontation, avoidance, and acceptance-resignation. Coping effectiveness appears to be negatively linked to frequent use of avoidance and acceptance-resignation.[28] Avoidance was most prominent among patients who were of lower socio-economic status, and who were less self-directed and more negative in self perception, whereas acceptance-resignation was particularly evident in patients with little expectation of recovery and lack of hope. Confrontation was more often used by those who were more extroverted and those who perceived their illness to be serious.[28] It was less often employed by non-life-threatened chronically ill patients.[27] In RA, active or confrontational coping strategies were found to be associated with better adjustment, whereas strategies characterised by avoidance and passivity had the opposite effect.[11] In this disease positive mood was related to active information seeking, and depression was associated with avoidance, self blame and wishful thinking.[29-31] McCracken *et al.*[11] found that problem-focused coping showed a significant negative relationship with depression scores in SLE.

These findings need to be verified in South African patients with chronic rheumatic diseases. Knowledge of factors that contribute to depressed mood and that may be amenable to intervention would be beneficial to those mental health professionals charged with counselling these patients.

The aims of this study were to examine: (*i*) the extent of depression of South African patients with SLE and RA; (*ii*) possible differences in coping styles between patients with SLE and RA; (*iii*) the relationship between coping styles and depression; and (*iv*) other factors possibly predicting the degree of depression, including stressful life events, disease activity, educational level, and age.

METHODS

Subjects

Fifty-three consecutive SLE and 19 consecutive RA outpatients attending rheumatology clinics at Tygerberg Hospital, a teaching hospital in Cape Town, were invited to participate. SLE was diagnosed by physicians according to the 1982 American College of Rheumatology (ACR) criteria for SLE.[32] RA was diagnosed according to the 1987 revised ACR criteria.[33] Exclusion criteria were mental retardation, illiteracy, and inability to understand Afrikaans or English.

Measures

1. A biological questionnaire was used to obtain, among other information, data regarding age, gender and educational level.

2. The Medical Coping Modes Questionnaire (MCMQ)[27,28] was used to assess patients' coping responses to their current illness by appraising three types of coping responses, namely confrontation, avoidance, and acceptance-resignation. This 19-item questionnaire is answered on a four-point scale (from 'never' to 'very much'). Sample items include: 'How often do you want to be involved in decisions regarding your treatment?' and 'How often do you feel there is really no hope for full recovery?'.

3. The Zung Self-Rating Scale for Depression (ZDS)[34,35] was used to determine the presence and degree of depression. Its 20 items comprehensively delineate the depressive disorders as they are generally recognised[35] and the statements are worded in everyday language. Each item is evaluated by the patient on a four-point scale. ZDS cut-off points for the presence of depression are as follows: < 50, within normal limits; 50 - 59, minimal to mild depression; 60 - 69, moderate to marked depression; > 70, severe to extreme depression. Several studies have confirmed the cross-cultural validity and reliability of the ZDS.[36-39] However, a limitation of the ZDS is the fact that it is not directly linked to an established diagnostic system such as that of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV*).

4. The Lupus Activity Criteria Count (LACC)[40] was used as an indicator of illness severity in both SLE and RA patients. A LACC > 1 indicates active disease.

5. An adapted 61-item version of the Life Event Scale (LES)[41] was used to measure the stress caused by life experiences. The original 66-item LES was standardised on black adults in the Cape Peninsula, South Africa. Although no data are available regarding its reliability and validity, its advantage is that it is a locally developed life event scale. It is regarded as a suitable instrument for assessing events perceived to be highly stressful in the South African context[41-43] and was successfully implemented in two South African studies examining the effects of stressful events on psychological status.[42,43] An example of an LES item is: 'Did someone in your family die during the past 12 months?'. The severity of each event, as perceived by the patient, was rated on a 5-point scale ('not difficult or bad' to 'extremely difficult or bad'). Items dealing specifically with illness ('Have you been hospitalised during the past 12 months?') were removed from the scale because we were already examining disease severity by means of the LACC. Five other items on the original LES were omitted because they are relevant only to the black culture, and our patients were predominantly from the coloured population.

Measures were applied in the subjects' home language (Afrikaans or English). The questionnaires were translated into Afrikaans by one of the researchers (JJS), a clinical psychologist with professional experience in translation.

Procedure

Consecutive SLE and RA outpatients who attended the weekly clinics and met the inclusion criteria were invited to

participate. After providing written, informed consent, patients completed the questionnaires under the supervision of one of the researchers (MMV or FJH) or a part-time research assistant (a registered psychiatric nurse). In order to determine the LACC, patients were examined by a physician. A full blood count, complement levels (C3, C4 and total complement), anti-double-stranded DNA antibodies and urine testing for haematuria were also performed to compile the LACC. All procedures were approved by the Ethical Committee of the Faculty of Medicine, University of Stellenbosch.

Statistical analyses

The Kolmogorov-Smirnov goodness-of-fit test was used to test departures of variables from normality. Student's *t*-test or the Mann-Whitney *U*-test was used to compare the groups. To adjust for the effect of certain baseline differences between the groups, analysis of covariance (ANCOVA) was used to compare the SLE and RA groups in terms of coping styles and depression. The statistical significance of differences between dichotomous nominal variables was determined by means of a Yates-corrected chi-square test with one degree of freedom. For correlations between numeric variables we used Spearman's rank order correlation coefficient. To determine which variables significantly predicted depression severity, multiple regression analysis was performed. Results were considered statistically significant at the 5% level.

RESULTS

All 53 consecutive SLE and 19 RA patients who satisfied the inclusion criteria participated. Two SLE patients were excluded because of incomplete data. The 70 patients in the final sample included 65 women and 5 men. Ninety-four per cent of the SLE patients and 90% of the RA patients were female. The ages of the sample ranged from 14 to 66 years (mean 37 years, SD 12.0). The SLE group's mean age and life stress (LES scores) were significantly lower, and their LACCs significantly higher, than those of the RA group (Table I). Active LACC scores were found in 22 SLE (43%) and 2 RA patients (11%).

Extent of depression

The extent of depression in the various ZDS categories for SLE and RA patients respectively, was as follows: within normal limits, 33 (65%) and 13 (68%); minimal to mild, 16 (31%) and 6 (32%); moderate to marked, 2 (4%) and 0 (0%). No subject had a score indicating severe depression. The groups did not differ significantly with regard to ZDS scores, even after adjusting for differences in LACC, age and LES.

Differences in coping styles between SLE and RA patients

The mean confrontation coping mode score of the RA group was significantly higher than that of the SLE group (Table I). Because of the significant differences between the groups with regard to age, ANCOVA was performed with age as covariate. ANCOVA indicated that there were no significant differences between the SLE and RA groups with regard to coping modes.

Predictors of depression

Since the groups did not differ significantly with regard to ZDS scores, multiple regression analysis was performed on the combined sample, with ZDS as dependent variable and LES, MCMQ scores (avoidance, acceptance-resignation, and confrontation), LACC, educational level, and age as predictor variables (Table II). The proportion of the variance explained by the model was 32%. Significant predictors of depression included LES score ($P = 0.011$) and an acceptance-resignation coping mode score ($P = 0.008$). There was a near-significant positive relationship between depression and LACC ($P = 0.056$). Because LACCs of the two groups differed significantly in the univariate analysis (most subjects in the SLE group having active LACCs and the converse in the RA group), we

Table I. Characteristics of the SLE and RA groups

	SLE ($N = 51$)	RA ($N = 19$)	Test statistic	*P*-value
Age	35 (11.2)	46 (10.3)	$t = 3.71$	0.0004†
Years of education	7.3 (3.0)	6.1 (2.2)	$t = 1.64$	0.106
ZDS score	45 (9.6)	45 (6.7)	$t = 0.31$	0.976
LES score	9 (12)	13 (9)	$Z = 2.18$	0.029*
LACC	1 (1)	1 (1)	$Z = 2.28$	0.023*
Coping modes				
Acceptance-resignation	10.1 (2.02)	9.8 (1.95)	$t = 0.444$	0.658
Avoidance	17.6 (3.79)	18.1 (3.96)	$t = 0.439$	0.662
Confrontation	21.7 (4.03)	24.0 (4.28)	$t = 2.06$	0.043*

LACC and LES scores are expressed as the median (and interquartile range). All other results are expressed as mean (and SD).
* $P < 0.05$.
† $P < 0.001$

Table II. Results of multiple regression, with ZDS as dependent variable

Predictor	Coefficient	SE	*t*-ratio	*P*-value
Constant	36.545	9.419	3.88	0.0003
Education	– 0.622	0.394	–1.580	0.119
Age	0.011	0.084	0.134	0.894
LES	0.242	0.092	2.634	0.011*
LACC	1.978	1.016	1.946	0.056
Coping modes				
Avoidance	0.137	0.238	0.576	0.567
Acceptance-resignation	1.296	0.476	2.723	0.008†
Confrontation	–0.376	0.217	–1.737	0.087

SE = 7.279, R^2 (adjusted) = 0.322, SE = standard error.
* $P < 0.05$.
† $P < 0.01$.

determined separate correlation coefficients between ZDS scores and LACCs for the two groups. Both LSE and RA groups showed significant correlations between ZDS and LACC ($r_s = 0.32$, $P = 0.026$ and $r_s = 0.58$, $P = 0.014$, respectively).

Discussion

The extent of depression in SLE and RA patients attending a rheumatology outpatient clinic at a South African teaching hospital was 35% and 32%, respectively. Depression was mainly of a mild to moderate degree. Significant predictors of depression severity included stressful life events unrelated to the illness and the use of a predominantly passive, acceptant mode of coping with their illness. These findings support previous research, which suggested that coping techniques involving positive attitudes (e.g. remaining hopeful) are negatively related to depression,[44] and that depressed individuals often use less effective coping strategies than normal controls.[45]

While medical treatment exists for patients with auto-immune rheumatic disease, the quality of life of these patients can be enhanced by psychotherapeutic assistance. Since this study corroborates previous research revealing an association between negative mood and passive coping styles in these conditions,[11] it implies that psychotherapeutic training of patients in the use of more active coping strategies could be beneficial to their mood, and could consequently enhance their quality of life. Patients' ability to deal effectively with the stress of chronic disease and its treatment plays a significant role in their adjustment and recovery.[46] Problem-solving counselling was found to improve adjustment to chronic illness in patients living alone and those who used ineffective coping styles, such as avoidance.[47] In the same study, telephonic support by nurses proved beneficial in alleviating psychological distress. A study by Braden *et al.*[48] indicated that depression decreased as enabling skills increased during a SLE self-help course. Helping patients to reduce the frequency of engaging in passive modes of stress management, such as acceptance-resignation, and to employ more effective problem-directed coping strategies, such as confrontation, may have beneficial effects in reducing depression. The Systemic Lupus Erythematosus Self-Help (SLESH) course is a self-management programme that provides knowledge and enabling skills to people with SLE. Robbins *et al.*[49] have suggested that the SLESH course should be adapted for groups with different cultural backgrounds. Research in a South African setting is needed to test the effectiveness of such interventions in patients with rheumatic diseases. Cognitive-behavioural treatment programmes that teach RA patients pain-coping skills have been developed,[50] but further research into their effectiveness is necessary.

A significant proportion of the variance in ZDS scores was accounted for by stressful life events other than the disease itself. This finding is in accordance with previous findings of a relationship between life stress and depression.[51-54] A study by Zautra *et al.*[55] has also suggested that RA patients may be more reactive to stress than patients with non-auto-immune-mediated arthritis.

The finding of the relatively mild nature of depressive symptoms in our sample is in keeping with a previous study on SLE undertaken in this institution, in which *DSM-III-R* criteria were used to diagnose depression.[10] In the latter study 13.6% of SLE patients had depressive disorders. Only 2.2% had severe depression. In contrast to the study by Hugo *et al.*[10] which found no association between psychiatric manifestations and disease activity in SLE, we found a significant positive correlation between depression and LACC in both SLE and RA subjects. A possible explanation is that the ZDS score is a continuous variable and therefore has greater statistical power to detect relationships than the *DSM-III-R* classification, which is a dichotomous variable. While the positive correlation between disease activity and depressive symptoms in SLE and RA may suggest that disease exacerbations are caused by negative mood states, a more likely explanation is that increased pain and/or functional impairment during periods of active disease produce the depressive symptoms.

The fact that the SLE and RA groups had similar proportions of patients with depression argues against CNS involvement being the main aetiological factor for depression in SLE, and supports research by Lim *et al.*[56] However, the present study did not attempt to distinguish between patients with CNS involvement and those without, and deductions in this regard should therefore be made with caution.

The present study has a number of limitations. Because of the absence of control groups it is unknown whether the findings regarding, for example, life events, are specific to this group of patients, or whether they would apply to patients with other chronic diseases as well. The study is also limited by the lack of data on corticosteroid therapy, since corticosteroids may result in psychiatric morbidity.[57] However, in a large study of SLE undertaken at this institution,[10] no association was found between corticosteroid therapy and depression. Another limitation is that patients' subjective perception of the distress caused by their illness was not quantified. The main limitation of the present study is its cross-sectional design.[58] This meant that the longitudinal effect of life stress and coping styles could not be examined. Life stress may not only influence mood, but has also been postulated to affect disease activity in SLE.[59] It is also not clear whether ineffective coping styles are a cause or a result of depression. The causal relationship could be bi-directional.[60] Further longitudinal studies are therefore necessary to shed more light on the complex interrelationships between coping, disease activity, life stress and depressive symptoms in chronic auto-immune rheumatic diseases.

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