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Review Article

Resilience and the Association with Depression, Anxiety and Trauma History in Patients with Systemic Lupus Erythematosus

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Abstract

Background: There is a known association between stress, depression, anxiety and the physical manifestations of Systemic Lupus Erythematosus (SLE) such as rash, renal function, and levels of antibodies. Depression and daily stress are known risk factors that may interfere in the vulnerability and resilience (RS) capacity of the lupus patients.

Objectives: To analyze the association between resilience and symptoms of depression and anxiety and evaluatethe association of trauma history experienced throughout lifewith RS in patients with SLE.

Method: Ninety-two patients with systemic lupus erythemathosuswere evaluated withWagnild& Young Resilience Scale, HAD Hospital Anxiety and Depression Scale Trauma History Questionnaire (THQ) and MEX-SLEDAI. Multilevel regression analyses estimated associations between low resilience and trauma history depression symptoms and anxiety.

Results: The prevalence ofdepression symptoms was 25% and symptoms of anxiety 51.1%. Low RS was identified in 17 (18.5%) cases (score <120), moderate RS in 56 (60.9%) (Scoresbetween 121-145), and high RS in 19 (20.7%) (Scores>145). Using the multivariate analysis to identify the variables associated with low RS depression was the only significant variable (p=0.001)

Conclusion: Depression is the main factor associated with low RS in SLE patients. There was no significance for association between RS and history of trauma. Qualitative studies will be required for this evaluation.

Keywords: Anxiety; Depression; Resilience; Stress; Systemic Lupus Erythemathosus; Trauma History

Introduction

Systemic Lupus Erythematosus (SLE) is an autoimmune rheumatic disease of unknown causes [1,2] although psychological factors such as depression anxiety and stress are known to play an important role in the etiology and courseof SLE as well astreatment prognosis of the patient [3]. Depression is one of the most serious and common consequences of chronic illness and is associated with an increase in morbidity and mortality [4,5]. For the patients with SLE the depressive disorder constitutes achallenge for

psychological coping which are adjusting and confronting systems that is a set of mechanisms that the organism resorts to in reaction to stressors representing the manner in which each person evaluates and deals with these aggressions [6]. This challenge is due to the fact that there are many variables involved in the symptom and severity patterns of SLE. The lack of a diagnosis is common and the disease course is unpredictable [7]; on the other hand, depression is not always diagnosed and treated adequately [8]. There is a relation between stress depression anxiety and the physical manifestations of the disease such as rash, renal function and levels of antibodies [9,10]. Depression and daily stress are known risk factors that may interfere in the vulnerability of the lupus patients [11] decreasing their Resilience Capacity (RS); that is their capacity to recover and come out stronger when facing potentially traumatic life situations as in the case of a chronic disease [12] and situations known to be generators of stress associated with this condition. Vulnerability includes physical and psychological factors with the biological vulnerability referring to hypersensitivity of the limbic system, considered the neural substrate of emotions, responsible for the changes in the Hypothalamic-Pituitary-Adrenal axis (HPA) and showing an association with stress and depression [13,14]. The HPA axis is responsible in great part for an organism's response to a stressful stimulus. Stressors such as infection, toxins and/or psychological trauma stimulate the HPA axis resulting in the elevation of corticosteroids, suchas glucocorticoid [15]. Many patients with depression present a high concentration of cortisol (the endogenous glucocorticoid in humans) in blood plasma, urine, and in the Cerebro Spinal Fluid (CSF) an exaggerated response of cortisol to the Adrenocorticotropic Hormone (ACTH), and an increase of the adrenal and hypophysis glands demonstrating the association between depression and stress, although not all patients with depression present these changes. Childhood adversity islinked to altered HPA stress responses with an increased risk for multiple forms of psychopathology conditions associated with suicide including schizophrenia and mood disorders. Suicide is also strongly associated with a history of childhood abuse and neglect [16,17]. Researches onepigeneticshave been associatingstressfulenvironmental factorswith autoimmune diseases [18].One study found that daily stress (Occurring in circumstances of low intensity but of high frequency) could exacerbate the symptoms of patients suffering from lupus [19]. Daily stress is very common in SLE due to the disease's unpredictability the psychosocial implications that are involved the physical changes and the comorbidity with psychiatric illnesses such as depression and anxiety [20]. In a cross-sectional study Dobkin (1998) showed the relation between daily stress and the physical and mental health of patients with SLE [21]. Most studies evaluating stress in patients with SLE were limited to addressing daily stress while this article evaluates the stress experienced throughout life. This work has the objectives of (1) analyzing the association between RS and symptoms of depression and anxiety in patients with SLE and (2) evaluating the association of trauma history with RS in these patients.

Methodology

This was a quantitative cross-sectional study conducted in the Rheumatology outpatient clinic of the EscolaBahiana de Medicina e SaúdePública (Bahian School of Medicine and Public Health) with a group of patients diagnosed with SLE according to the criteria of the American College of Rheumatology [22]. Patients between the ages of 18 and 65 were included, selected through randomization and after agreeingto participate in the study. The patients were selected through randomization using a Random Number Table based on Stevenson 1981 [23].Randomization occurred by using on each day of consultations, a number corresponding to the Random Number Table. The sum of this number was obtained and the result corresponded to the number of the patient to be attended on the medical appointment list. If this patient had any exclusion criterion a new number was used from right below the name of this patient and the sum corresponded to the next patient to be invited to participate in the study. Those withother autoimmune rheumatologic disorders whodeclined to participate or were unable to answer the questionnaires were excluded from the study.

The following were used as assessment instruments

Sociodemographic questionnaires the Mexican version of the Systemic Lupus Erythematosus Disease Activity Index-MEX-SLEDAI-where a medical resident carried out the patient evaluation right after the scheduled appointment [24] Wagnild & Young Resilience Scale [25,26,27] validatedfor Portuguese by Pesce et al. (2005) [28] measured levels of positive psychosocial adaptation in the face of adverse life events (20); Hospital Anxiety and Depression Scaledeveloped by Zigmond andSnaithin 1983 [29] and validated by Botega et al., in 1998 [30] having 14 items 7 for anxiety 7 for depression with a cutoff point of 8 for anxiety and 9 for depression and theTrauma History Questionnaire Green (1996) [31] and adapted for Portuguese byFizman et al. (2005) [32] aiming at evaluating the occurrence of a wide variety of traumas of large magnitude throughout life. The sample size calculation was carried out with calculations fromthe Laboratory of Epidemiology and Statistics of USP (LEE) where the population ratio was 40% with absolute precision of 10% significance level of 5% and a necessary sample of 92 volunteers. The data were analyzed using the SPSS (Statistical Package for Social Sciences) version 19.0 for Windows. Either Pearson's chi square test or Fischer's exact test was used to evaluate associations between qualitative variables; a multivariate analysis was used to calculate the prevalence ratio. The significance level adopted was $p < 0.05$. The patients signed the Informed Consent Form where they agreed to participate in the study and allowed the scientific use of the data. The Research Ethics Committee (REC) of Santa Izabel Hospital approved the research protocol (Approval Number 90/2012).

Results

Ninety-two patients were included in the study, followed up at the outpatient clinic from 04/08/2013 to 07/14/2014. The selected sample was exclusively female which is not uncommon when dealing with lupus for this population is predominantly female andages rangedbetween 18 and 65 years (average age 36.83, standard deviation was 9.943, mean 36.00). The most prevalent age group was between 18 and 30 years and 70% of them had a partner (husband, partner or boyfriend). As to the socioeconomic evaluation 19 (21.3%) of the patients had a family income below minimum wage while 21(23.6%) had a family income corresponding to the monthly minimum wage. Fifty-seven (62%) of the patients did not hold a paying job (some were receiving benefits). The association between resilience severity and socioeconomic and clinical variables of the patients with lupus is listed in (Table 1).

		Resilience (%)		
Variables	**n=92**	**Low**	**Med**	**High**
Age (Years)	≥ and ≤ 30	3 (17.6)	24 (32.0)	
	> 30 and ≤ 36	3 (17.6)	18 (24.0)	0.456
	> 36 and ≤ 44	6 (35.3)	16 (21.3)	
	> 44	5 (29.4)	17 (22.7)	
Education	Primary	8 (47.1)	14 (18.7)	
	High School	7 (41.2)	50 (66.7)	0.045*
	College	2 (11.8)	11 (14.7)	
Have partner	No	6 (35.3)	21 (28.0)	0.565
	Yes	11 (64.7)	54 (72.0)	
Occupation	No	7 (41.2)	50 (66.7)	0.059
	Yes	10 (58.8)	25 (33.3)	
Family income (R$)	<724,00	4 (25.0)	15 (20.5)	
	724	6 (37.5)	15 (70.5)	
	>724,00 and<1500,00	3 (18.8)	!8 (24.7)	0.541
	>1500,00 and<3000,00	2 (12.5)	20 (27.4)	
	≥ 3000,00	1 (6.2)	5 (6.8)	
Religion	Catholic	6 (35.3)	31 (41.3)	
	Evangelical	11 (64.7)	29 (39.7)	
	Spiritist	0 (0.0)	3 (4.0)	0.224
	Other religions	0 (0.0)	2 (2.7)	
	No religion	0 (0.0)	10 (13.3)	
Time of diagnosis	<4	5 (29.4)	24 (32.0)	
	>4 and ≤8	0 (0.0)	19 (25.3)	0.075
	>8and≤12	7 (41.2)	16 (21.3)	
Mex Sledai	>12	5 (29.4)	16 (21.3)	
	<2	7 (41.2)	42 (56.0)	
	≥2	5 (29.4)	8 (10.7)	0.13
	>5	5 (29.4)	25 (33.3)	
HAD Depression	No	6 (35.3)	63 (84.0)	0.000*
	Yes	11 (64.7)	12 (16.0)	
HAD anxiety	No	3 (17.6)	42 (56.0)	0.006*
	Yes	14 (82.4)	33 (44.0)	
Use of corticoids	≤ 20mg	9 (52.9)	28 (37.3)	
	≥ 20mg	7 (41.2)	44 (58.7)	0.337
	> 20mg and ≤ 40mg	0 (0.0)	2 (2.7)	
	>40mg	1 (5.9)	1 (1.3)	

Table 1: Distributionof the populationacording to the degree of resilience inpatients with SLE.

Observation

R$724.00 corresponds to the monthly minimum wage at the time the study was conducted. With regard to the clinical characteristics, the most prevalent time of diagnosis was ≤ 4 years. A total of 55 (59.7%) patients were taking corticoids. Based on the MEX-SLEDAI, 42 (45%) of the patients did not present active SLE, and the rest had "Probably Active" 20 (21.7%) or "Active" 30 (32.6%) SLE.

The following results were shown when evaluating the degree of RS in the studied population: Low RS was identified in 17 (18.5%) cases (score <120) moderate RS in 56 (60.9%) (Scores between 121-145) and high RS in 19 (20.7%) (Score>145). In this study the classification of RS scores was grouped into "Low" and "Medium/High." In the assessment of depression symptoms in the patients with SLE 23 (25%) presented these symptoms. With regard to anxiety, 47 (51.1%) presented such symptoms. In the association between RS and clinical variables significance between the variables "Resilience" and "Depression" and "Resilience" and "Anxiety" was observed, therefore one can say that the patient who does not have depression tends to have a higher scoreof RS. The same occurs in the association with anxiety. There was no significance for the variables "Disease activity" "Use of Corticoids" and "Time of Diagnosis." With regard to exposure to traumatic events 16 (17.4%) of the patients suffered sexual violence; nine of whom were children at the time. The abusers were family friends, cousins, neighbors, stepfathers, or uncles. Only two cases involved men who were not relatives; one was a stranger and the other was the father's employee.

The prevalence of those who experienced non-sexual violence was 55 (59.8%) where the most common was robbery

reported by 30 (32.6%) and robbery with force or threat by 25 (27.2%) followed by physical violence (beating, pushing, striking and causing lesions) reported by 14 (15.2%) patients. With regard to childhood sexual violence only 9 patients had gone through this situation. Among these only 2 did not present marked symptoms of depression and anxiety. The ones who were abused by their step father, uncle, or family friend presented symptoms in the range of strong anxiety and/or strong depression. There was no statistical significance found in the study of an association between RS and history of trauma (Table 2).

Variables	Resilience n(%)		
	Low	Med./High	p
Non-sexual violence**			
No	6 (35.3)	31 (41.3)	0.786
Yes	11 (64.7)	44 (58.7)	-
Sexual violence**			
No	14 (82.4)	62 (82.7)	1.000
Yes	3 (17.6)	13 (17.3)	-
Exposed to radioactivity**			
No	16 (94.1)	68 (90.7)	1.000
Yes	1 (5.9)	7 (9.3)	-
Suffered serious accident**			
No	17 (100)	4 (5.3)	1.000
Yes	0 (100)	71 (94.7)	-
Participated in combats**			
No	17 (100)	74 (98.7)	1.000
Yes	0 (0.0)	1 (1.3)	-
Natural disasters**			
No	16 (94.1)	64 (85.3)	0.454
Yes	1 (5.9)	11(14.7)	-
Other traumas**			
No	13 (76.5)	55 (73.3)	1.000
Yes	4 (23.5)	20 (26.7)	-
No	2 (11.8)	13 (17.3)	1.000
Yes	15 (88.2)	62 (82.7)	-

Table 2: Association between resilience and traumatic events of the patients with Systemic Lupus Erythematosus.

Using the multivariate analysis to identify the variables associated with low RS, depression was the only significant variable (Table 3).

Variables	Exp(B)	p	Final Exp(B)	p	CI	95%
High school Education	0.428	0.304				
PrimaryEducation	0.863	0.859				
Depression	3.252	0.040	5.500	0.001	2.034	14.872
Anxiety	3.318	0.085				

Table 3: Poisson regression analysis to evaluate variables associated with low scores of RS. Exp (B): regression coefficient, p: level of significance, CI: confidence interval.

Discussion

The results of this study indicate that scores of low RS are associated with depression which is in agreement with previously published studies that confirm an inverse relation between depression and anxiety and RS both with regard to SLE and to other clinical conditions [11,33-37].Therefore it could be said that high scores of RS might protect against the development of psychiatric illnesses so prevalent in chronic conditions [38,39] and that are so harmful to the patient's quality of life related here to the impact that the disease and its treatment have on the individual's ability to function and his or her perception of well-being in the physical, mental, and social domains [40]. In this study in agreement with previous studies [38,39] prevalence was found of anxiety symptoms (51.1%) even more than those found for the variable depression (25%). It is known that there is an association between anxiety and RS confirmed at the beginning of the study analysis when the data were evaluated through chi-square but it was not confirmed in the Poisson regression. Despite this and even due to the fact that anxiety is the main comorbidity of depression one can understand anxiety as a risk factor for low RS. Clinical variables such as time of diagnosis, corticoid use and disease activity were not associated with a lower or higher score of RS findings that were similar to a previousstudy conducted at our service center [9]. Abu-Shakra (2016) similarly did not find any association between RS and disease activity. To said author depression is associated with the subjective experience of the disease and not the disease itself or the disease activity [41] while Schatner (2010) considers the disease activity a predictor for depression in lupus [7]. Among the sociodemographic variables, the only one that reached statistical significance in association with RS although unconfirmed in the Poisson regression was education. Changes are fast and constant in modern life demanding continuous effort to adapt which causes RS to

be a great challenge seeing thatRS entails variables and processes where human abilities support each other, to be used when facing adversities that everyone comes up against in higher or lower intensity [42]. The patient with lupus lives with daily stress related to his or her chronic condition and all the interfaces already reported in the body of this review. Depression is often confused with stress due to hyperactivity of the HPA axis which makes the differential diagnosis quite difficult. Depression as a symptom of stress is related to the conditions of adaptation of the moment [14,43]. The vulnerability model is directly related to the individual's sensitivity to emotional stress; certain traits may be developed to serve as buffers which make a synthesis between biological vulnerability and stressful life events [43]. The literature has shown that maltreatment in childhood and/or adolescence, concurrently or individually is associated with mental, physical and behavioral disorders [44,45] such as Attention-Deficit/Hyperactivity Disorder (ADHD) [46] cognitive disorders and somatizations [47] history of alcohol abuse or dependence, depression, anxiety, Post Traumatic Stress Disorder (PTSD) and the increase of inflammation measured by inflammatory markers such as Inter Leukin 6 (IL-6), C-Reactive Protein (CRP) [48 as well as self-injurious behavior [49].

Sexual abuse is the type of maltreatment that exerts the strongest association with mental damage [50, 51]. Children who suffer various forms of abuse may experience increased intensity of the harmful effects of these traumas. In these cases comorbid symptoms frequently occur [52]. This study found that seven of the nine patients who suffered childhood abuse by close relatives presented strong symptoms of depression and anxiety in which case the traumatic experience becomes a risk factor for low RS. However statistically speaking the variable "History of Trauma" was not significant in association with RS perhaps due to the instrument that was used. A qualitative methodology might lead to different results. Health promotion and disease prevention are priority issues in present-day societies. For Yunes (2003), Yunes and Szymanski (2001) the protective factors are the true determinants of RS which would be the product of these factors of protection [53,54]. For Rutter (1987) the processes of protection are characterized by fostering modification of the individual's responses to the processes of risk [55]. According to Slap (2001) each person should be able to recognize his or her own resources and should learn how to manage them and know how and when to apply them [56]. The development of resilience capacity and the promotion of resilient practices require different strategies in the way of mobilizing and activating capabilities that will help onedeal with adversity in order to overcome them, resulting inthe person beingstrengthened and even transformed.

The results of this study leave no doubt as to highlighting psychological intervention as an indispensable tool in the treatment of SLE. According to Córdoba-Sánchez and Limonero-García (2015) an effective psychological intervention (Be it in a psychotherapeutic support group, psychotherapy combined with psychoeducation cognitive behavioral therapy or a psychosocial group) along with medical treatment for patients with SLE might promote active coping mechanisms. These interventions should integrate components of psychoeducation regarding the disease, support, and strategies for self-regulation, as well as a focus on self-efficacy and self-esteem and the strengthening of a social support network [57]. Psychological assistance may be beneficial in the sense of fostering greater adaptation to the disease, decrease of pain and improvement ofthe clinical picture treatment adherence coping strategies lessening depression and anxiety changes in self-esteem and quality of life all of which influence the course of the disease. Once the situation of stress due to previous trauma is identified and afterthere is a resignificationof this situation a new future is unveiled; the book of life may be written differently and this includes health.

Limitations of This Study

Among the limitations of this study is the fact that there were no male patients included which occurred because of the randomization and the fact that the number of men with lupus is much lower with a ratio of one man to ten women. Conclusions and practical implications: The prevalence of depressive symptoms in patients with SLE using the HAD scale was 25% and 51.1% for anxiety symptoms. Depression is the main factor associated with low RS in SLE patients which may influence the onset and course of the disease and intensify the vulnerability of the patient. For future research a perspective of a deeper understanding between lupus and history of trauma is suggested mainly regarding the person's age at the time of trauma, for it is known that potentially traumatic situations experienced in childhood may play an important etiological role. Study projects are necessary that include psychological assistance to the patient with lupus at outpatient clinics as well as theeffort to make both patients and doctors aware of the implications of emotional aspects on health.

Conflicts of Interest: None

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