Evaluation of Anxiety in Chronic Dermatoses: Differences between Sexes

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Compendio

La piel, como órgano externo, juega un papel importante en las relaciones interpersonales. El carácter crónico de las dermatosis y la dificultad de establecer su etiología, hacen a quienes las sufren, candidatos y candidatas *ad hoc* para padecer altos niveles de ansiedad. Para valorar la influencia de la ansiedad en la aparición y mantenimiento de la patología dermatológica aplicamos el Inventario de Situaciones y Respuestas de Ansiedad -ISRA- y un cuestionario relativo a la historia de la enfermedad a 95 pacientes comparándoles con el mismo número de personas sanas. Consideramos factores como género, edad, tiempo de evolución y nivel de afectación del trastorno así como su relación con el estrés. Encontramos diferencias significativas entre los grupos y principalmente entre los géneros. El impacto psicológico que produce la dermopatía, así como su carácter crónico, se relaciona con un alto grado de ansiedad demostrado en este estudio, definiéndose el perfil de reactividad de ansiedad característico de tales pacientes.
Palabras clave: Dermatosis crónicas; estrés; evaluación de la ansiedad; diferencias entre los géneros.

Evaluación de la Ansiedad en Dermatosis Crónica: Diferencias entre Sexos

Abstract

Skin, as an external organ, plays an important role in interpersonal relationships. The chronic character of some dermatoses and their unknown etiology also makes these patients *who experience them, ad hoc* candidates for high levels of anxiety. Our objetive was to estimate the influence of this variable on the onset and duration of skin disorders. The Inventory of Situations and Responses to Anxiety - ISRA - and a questionnaire relative to the history of the disease were administered to 95 patients. Results were compared with those of 95 persons without skin diseases. Sex, age, duration of the disease, affectation level of the disturbance and its relation with stress were also considered. We found significant differences between average scores of the two groups and between the sexes. The psychological impact produced by skin disorders and their chronic condition were related to a high level of anxiety in these patients. The anxiety response profile of these patients was also defined.
Keywords: Chronic dermatoses; stress; anxiety assessment; gender differences.

The skin is a major organ of communication, being the primary contact between the organism and the environment. Abnormalities of the skin's appereance due to skin diseases may produce rejection by community members, specially chronic dermatitis is evident in exposed areas. The consequence of this "impaired appearance" will be a depression of self-esteem and self-image (Gupta, Gupta, & Watteel, 1996). This is the main reason why patients with dermatoses are so often psychologically disturbed (Van Moffaert, 1992). Many studies report the importance of emotions (Chue,1976; Schimidt, Zyzanski, Ellner, Kumar, & Arno, 1985), unconscious conflicts (Engels, 1982; Whitlock, 1976),

personality traits (Gupta et al. 1996; Lyketsos, Stratigos, Tawil, & Psaras, 1986; Shanon,1979) and the presence of anxiety (Amorim-Gaudêncio, Cano-Vindel, & Miguel-Tobal, 1996; Ayyar & Bagadia, 1989; Monegro, 1988), or the association with stressful life events (Harvima et al., 1996) of dermatological diseases.

The dermatoses included on this study have the characteristic of being activated by stress or anxiety. The mayority of them have an unknown origin, related to immunomediated mechanisms or genetic factors (See Table1). Their evolution is recidivant in all cases without an aetiological treatment, with recurrences of simptoms clearly related to an external stimuli (stress). It is recommended the use of psychological therapies (biofeedback, relaxation training, operant conditioning and cognitive behavioral therapies) in the management of these skin disorders (Tsushima, 1988).

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Tabla 1
Characteristics of Chronic Dermatoses Included on the Study

Dermatoses	Etiology	Clinic	Treatment
Psoriasis	Unknown genetic (?)	Eritematoscamous plaques, vesicles and arthrophaties	Topic steroid Vit D UVA ray Oral retinoid Ciclosporine
Atopic dermatitis	Unknown genetic (?) immunologic (?)	Itch, dry skin	Topic steroid Oral antihystaminic
Acne	Hormonal genetic (?)	Papule, pustule, cyst in face or shouders	Antibiotic drugs Oral retinoid
Vitiligo	Unknown immunologic (?)	White spots	Photo-chemistry-therapy
Cronic urticaria	Immunologic	Migratory circunscribed, inflamation of skin, pruriginous	Oral antihystaminic Steroid
Alopecia areata	Unknown immunologic	Circunscribed hair follen	Oral steroid

In a previous report (Amorim-Gaudêncio et al., 1996) we identified several risk variables that impact the natural history of skin inflamatory diseases. These were mainly of two types: 1) psychosocial variables (situations, personality traits, attitudes and behaviors) and 2) biological variables (genetic susceptibility). Moreover, the immunologic system is very important in the development of certain dermatoses (Arnets, Fjellner, Eneroth, & Kalner, 1991; Rechart & Saarinen, 1991) and its functioning may be influenced by psychological factors such as stress and anxiety (Levine, 1994; Prystowsky, 1994).

Psychological stress and anxiety have been clinically recognized by dermatologists as related to worsening of skin conditions (Fortune, Main, O'Sullivan & Griffiths, 1997). Some studies have identified psychological distress as a correlate of the severity of psoriasis symptoms in 32-70% of interviewed patients (Gaston, Crombez, Lanssonde, Bernier-Buzzanga, & Hodgins, 1991). Recent works have tried to identify why this occurs. Turka et al. (1995) have demostrated the presence of interleukin 12[2] in the skin and in the central and peripheral nervous systems, suggesting that this factor is a mediator of the cutaneous reaction due to stress. Other authors (Glinsking, Brodeka, Glinska-Ferenz, & Kowalski, 1994) have detected increased level of beta-endorphin[3] in the serum of patients diagnosed with psoriasis, atopic dermatitis and systemic sclerosis, compared with controls. The highest levels of the neuropeptide[4] was found in patients with large plaques of psoriasis. All these reports suggest the intervention of emotional factors on cutaneous inflamatory diseases, although their biochemical and physiological basis is not entirely understood.

The aim of the present study was to analyze with the Three-Dimensional Model of Anxiety (Lang, 1968) and the Person-Situation Interaction Model of Anxiety (Endler & Magnusson, 1974): 1) the influence of anxiety and stress on the onset, exacerbation and maintenance of several chronic dermatoses; 2) the way these patients face situational demands and how they affect their skin problem

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[2] A cytokine recently shown to promote cellular immune responses.

[3] A 31-residue amino-acid peptide which belongs to the endogenous opiate family and is one of the most important mediators of stress.
[4] Substance P (SP), neurokinin A, neurotensin, vasoactive intestinal peptide (VIP), neuropeptide Y and calcitonin gen-related peptide (CGRP).

(Gupta, Gupta, & Watteel, 1997); and 3) to analyze gender differences due to the findings of the previous studies referred to a high grade of anxiety in women in comparison to men (Amorim-Gaudêncio, 2000, in press; Baptista, 2000; Casado, 1994; Miguel-Tobal & Cano-Vindel, 1995).

The interactive theories explain anxiety by addressing person characteristics, the situation conditions and person situation interaction. Any punctual manifestation of anxiety is a consequence of the interaction between a predisposition of the subject and some characteristics of the situation in which the behavior appears. The situation influences the behavior of the individual depending on the way it is perceived. Individual differences in behavior will be obtained from the interaction between the two types of information, one from the person and another from the situation.

Since the 1960's and with the introduction of cognitive variables by neobehaviorism, the anxiety concept has been transformed. Now both cognitive and multidimensional approaches have become central to major theories of anxiety. As a consequence, the paradigm shift has generated important changes, such as in the assessment and in treatment of anxiety, with assessment becoming more accurate and the treatment more individualized.

The unitary concept of anxiety is modified with a multifactor system of response as central to the theory. Anxiety is manifested with motor, cognitive, and physiological variables. This theory is known as *Three-Dimensional Model of Anxiety* and is based on the weak correlations found among the three types of responses. This conception has resulted in requiring that anxiety be studied as a complex phenomenon, centering in the three components linked to specific situations.

Method

Participants

A total of 190 participants were recruited of which 71 were males and 119 females. Their age ranged from 16 and 70 years (mean 33). They were divided into two groups. The first group was composed of 95 patients with several chronic dermatoses (psoriasis, atopic dermatitis, acne, vitiligo, urticaria and alopecia areata) that were attending the Department of Dermatology of Hospital Puerta de Hierro in Spain. A total of 100 patients were referred to the psychologist by their dermatologist. All were receiving dermatologic treatment, 95 of which agreed to voluntarily participate in the study and 5 patients didn't accept their

inclusion in the study. Their response rate was 95%. It included 35 males and 60 females, with a mean age of 35 years. The mean duration of the diseases among these patients was 6.3 years.

The second group or control group was formed by 95 healthy subjects from the general population (people belonging to different groups - students, workers, etc.), without dermatological or psychological conditions, who were also volunteers that agreed to participate in the psychological assessment. There were 36 males and 59 females, with a mean age of 31 years and their age ranged from 18 to 60. These people were selected in the same social-work conditions and nearly ages from the patients group. They were recruited in the university, in the hospital among the accompanists' patients, and among the public employees. In all cases the interviews were realized in a individual way and a hospital document from informed consent was used. Both, patients and control subjects, were studied for six months.

Instruments

Each patient was asked to complete a specific questionnaire about his or her disease history: duration of the disease, degree of concern with the disease and its relation with stressful events on a *Likert* scale between 0 and 10 where 0= no concern and 10= unbearable.

Their reactions and anxiety situations were evaluated using the Inventory of Situations and Responses of Anxiety (ISRA; Miguel-Tobal & Cano Vindel, 1994). The ISRA is a questionnaire that includes situations and anxiety responses. The respondent evaluates the frequency with which he or she manifests a set of anxiety responses in the presence of different situations. Its reliability, obtained by *alpha* coefficient, is between 0.95-0.99. The Brazilian adaptation of the ISRA shows the same *alpha* coefficient (Amorim-Gaudêncio, In press; Amorim-Gaudêncio, 1998). It allows for the evaluation of three response systems: 1) the cognitive system, assessed by 7 items (C) (feelings and thoughts of fear, insecurity, etc.); 2) the physiological system, assessed by 10 items (P) (autonomic and somatic activation); and 3) the motor system, assessed by 7 items (M) (agitation, flight reaction); in the presence of four types of specific situations or anxiety traits. These situations includes: F1) test anxiety (6 items) (evaluation and assumption of responsibilities), F2) interpersonal anxiety (3 items) (social and sexual interactions), F3) phobic situations (4 items) (phobic stimuli, i.e. being in high places), and F4) habitual or daily life situations (3

items) (working, studying). The ISRA also offers a total score or general trait of anxiety (T) measure.

Procedure

At the beginning, the dermatologist selected the patients according to their dermatological diseases. Patients received an explanation of the nature and procedure of the investigation and its objectives. Once the patient agreed to participate he/she was interviewed by the psychologist who administered the instruments in a one-hour session. The patients of the group with skin disorders completed the questionnaire about their disease history followed by the ISRA. The control group completed the ISRA under same conditions that the skin disorders group, in all cases, they were interviewed in a individual session, sometimes in the hospital and other times in a special room at work or at university.

Results

Statistical analysis (mean frequencies, variance and t test) of the data were performed with the statistical software package BMDP (BMDP is a registered trademark of BMDP Statistical Softwares, Inc.; Dixon, 1993). In the first group, 80% of the participants informed an association between the beginning of the disease and difficulties or stressful moments of their lives, while 20% denied such a relationship. Example were death of a first-degree relative (mother, father, son or someone very significant), loss of employment, breakup of romantic relationships or other problematic situations in work or family. They (80%) also informed a causal relation between stressful moments and worsening of the skin disease. They felt very affected emotionaly and physically because of the dermatoses, scoring a 9 (mean range of the group) on the Likert scale between 0 and 10 where 0= no concern and 10= unbearable.

An analysis of variance between groups (dermatoses patients and control group) showed that the major differences were in the cognitive response system (C) followed by the general trait of anxiety (T) (See Table 2). In addition, in the specific traits of anxiety, daily life situations (F4) accounted for the more pronounced differences (See Table 3).

Table 2

Analysis of Variance between Groups and Sexes in the Three Systems of Responses and in the General Trait of Anxiety

	Source	df	F
Cognitive	Mean	1	749.11
	Group (G)	1	15.26****
	Sex (S)	1	12.08***
	G x S	1	0.75
	Error	186	
Physiologycal	Mean	1	281.92
	Group (G)	1	1.87
	Sex (S)	1	15.6****
	G x S	1	0.83
	Error	186	
Motor	Mean	1	303.42
	Group (G)	1	0.83
	Sex (S)	1	6.71**
	G x S	1	1.29
	Error	186	
Total	Mean	1	549.34
	Group (G)	1	5.75*
	Sex (S)	1	14.11***
	G x S	1	1.2
	Error	186	

Note: *$p<0.05$; **$p<0.01$; ***$p<0.001$; ****$p<0.0001$

Table 3

Analysis of Variance between Groups and Sexes in the Four Specifics Situations or Traits of Anxiety

	Source	*df*	*F*
F1	Mean	1	649.93
	Group (G)	1	1.96
	Sex (S)	1	18.14****
	G x S	1	1.32
	Error	186	
F2	Mean	1	287.97
	Group (G)	1	0.89
	Sex (S)	1	4.63*
	G x S	1	0.1
	Error	186	
F3	Mean	1	227.79
	Group (G)	1	1.62
	Sex (S)	1	10.11**
	G x S	1	0.72
	Error	186	
F4	Mean	1	220.56
	Group (G)	1	15.24****
	Sex (S)	1	8.88**
	G x S	1	2.01
	Error	186	

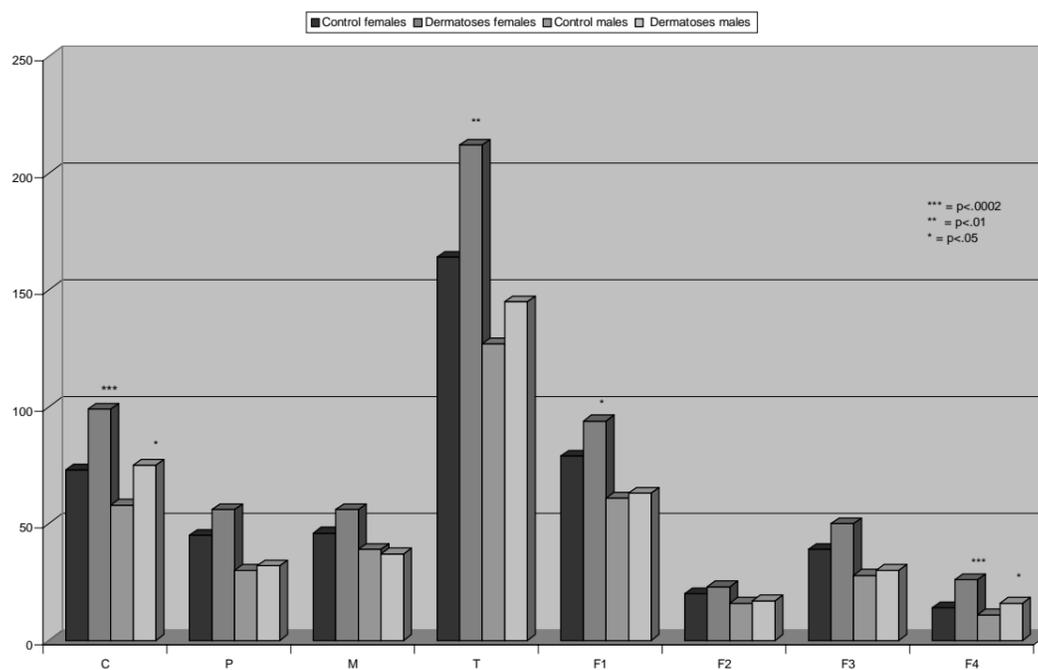Note: $*p<0.05$; $**p<0.01$; $***p<0.001$; $****p<0.0001$

Figure 1. Anxiety profiles of anxiety on three systems of response, general trait an specific traits

There were no significant differences in the other variables we had evaluated, although the group of patients with skin diseases scored higher than the control group in all of them. It is important to emphasize that analysis of variance between genders in both groups showed the most significant differences, with females scoring higher than males in both groups, which means that women independent of group scoring higher than men, in other words, women feel more anxious than men, with or without skin problems.

Using Students' t test we compared the average scores of the two groups according to the genders and the results revealed significant differences. Women with dermatoses presented a profile of anxiety higher than women in the control group, with significant

differences in the cognitive variable (C) (t=-3.79; p<0.0002), in the total score (T) (t=-2.59; p<0.01), test anxiety (F1) (t=-1.91; p<0.05) and daily life situations (F4) (t=-3.92=; p<0.0002). When we compared males in both groups we also found significant differences. The men in the group with dermatoses presented in their anxiety an increased response in the cognitive system (C) (t=-2.03; p<0.05) and a higher score in daily life situations (F4) (t=-2.03; p<0.05). Curiously, in the motor variable (M) men of the dermatoses group scored lower than the control group, although with minimal differences (See Figure 1).

In view of these results, we decided to analyze differences between groups according to the level of anxiety in more anxious situations (ISRA's items) and the type of anxiety responses that they showed under such

Table 4

*Intergroup Mean Differences in Several Situations of ISRA**

Situations		Control	Dermatoses	p
s2	M	8.2	11.32	0.003
	SD	6.37	7.54	
s3	M	10.07	14.22	0.001
	SD	6.94	10.19	
s4	M	7.65	8.97	0.03
	SD	4.05	4.48	
s5	M	5.09	7.75	0.0004
	SD	4.13	5.83	
s6	M	6.48	10.33	0.0002
	SD	6.12	7.66	
s12	M	6.25	11.25	0.003
	SD	10.14	12.91	
s13	M	11.75	14.01	0.03
	SD	7.10	8.02	
s15	M	3.17	4.38	0.04
	SD	3.59	4.62	
s16	M	6.01	8.63	0.007
	SD	5.81	7.74	
s17	M	11.25	14.31	0.05
	SD	9.47	12.40	
s21	M	5.92	10.01	0.002
	SD	8.31	9.63	
s22	M	1.88	4.97	0.0001
	SD	2.72	4.91	

* **s2**: *When I am going to get late to a date;* **s3**: *When I think in the many things I have to do;* **s4**: *When I have to make a decision or solve a difficult problem;* **s5**: *In my work or when I study;* **s6**: *When I wait somebody in a crowded place;* **s13**: *After I make a mistake;* **s15**: *When I have a date with a person of the other sex;* **s16**: *When I think in my future or in difficulties and future problems;* **s17**: *In the middle of the crowd or in closed space;* **s21**: *Without any cause;* **s22**: *At bedtime*

Table 5

Intergroup Mean Differences in Several Responses of ISRA[*]

Situations		Control	Dermatoses	*t*	*p*
r1	*M*	18.8	22.32	2.85	0.004
	SD	7.55	9.32		
r2	*M*	4.78	7.72	3.55	0.0005
	SD	4.75	6.45		
r3	*M*	4.56	13.09	3.63	0.0004
	SD	4.91	6.37		
r4	*M*	9.08	13.09	4.86	0.0001
	SD	4.91	6.37		
r5	*M*	7.35	9.62	2.66	0.008
	SD	4.92	6.65		
r6	*M*	14.8	20.66	4.63	0.0001
	SD	8.26	8.93		
r7	*M*	7.71	10.34	2.71	0.007
	SD	6.08	7.04		
r9	*M*	3.53	5.55	2.93	0.003
	SD	4.03	5.38		
r12	*M*	6.09	7.17	1.91	0.05
	SD	3.59	4.25		
r16	*M*	7.29	11.03	2.38	0.01
	SD	8.49	12.70		
r18	*M*	1.66	2.72	2.16	0.03
	SD	2.72	3.96		
r21	*M*	2.38	3.98	3.35	0.001
	SD	2.54	3.89		

[*] **r1:** *I get worried easely;* **r2:** *I have negative thoughts about myself, such as "inferior" than the others, awkward;* **r3:** *I feel insecure of myself;* **r4:** *I think too much in things and I don't finally decide;* **r5:** *I feel scared;* **r6:** *I can't concentrate myself;* **r7:** *I think people will find out my problems and my mistakes;* **r9:** *My hands get sweat even in cold days;* **r12** *My body it is in tension;* **r16**: *My mouth gets dry and I have difficulties to swallow;* **r18:** *I cry easily;* **r21:** *I try to avoid the situation*

circumstances. Using the t test, we found that patients with skin disorders had higher scores than subjects of the control group, not only in anxiety situations but also in their responses to them (See Tables 4 and 5).

Twelve items of Table 4, corresponding to different situational factors were studied. Those which are related with daily life scored significantly higher (s3, s5, s21 and s22). Factors related to test anxiety (s4, s13 and s16), phobic items (s14 and s17); and S6 that may be considered an item related to interpersonal and phobic anxiety, were also higher. When we studied the anxiety responses analysed with the ISRA, all the cognitive responses (C) increase significantly (r1, r2, r3, r4, r5, r6 and r7), with important differences between both groups. Three of the ten physiological responses (P) reduced their levels of significance (r9, r12 and r16), and finally two motor

responses (M) were also significantly increased (r18 and r12), as can be seen in Table 5.

Discussion

The results of this study support the association of high levels of anxiety and stress in people suffering from a chronic inflammatory dermatoses (Ayyar & Bagadia,1989; Amorim-Gaudêncio et al., 1996; Harvima et al., 1996; Monegro, 1988). In our study, patients with skin disorders felt more anxious in certain situations than people without dermatoses, and they emited cognitive, physiological and motor responses of anxiety which were significantly more intense and frequent. We established different patterns of response for the groups and between genders in the same group. The situation profile revealed

that it is in daily life situations (gathered in F5) that the differences between the two groups are more pronounced, both in women and men, as we reported previously (Amorim-Gaudêncio et al., 1996). However, in the situations in which responsibility is implicated, women with dermatoses were significantly more anxious than women of the control group, and there were no significant differences between men of both groups. When examining the profile of the response system, people with skin diseases of both sexes had significant differences in the cognitive responses compared to people without chronic dermatoses. Nevertheless, only women with skin diseases revealed a general anxiety trait significantly higher than women of the control group. Men with chronic dermatoses also scored higher than men of the control group, but the differences were not statistically significant. Probably, these results are a consequence of a high importance of a physical appearance in women that could perceived the skin disorder as a threat for whose emotional well-being. Nevertheless, a high anxiety symptomatology has been observed in the three systems of anxiety responses of all the patients; moreover, the skin desorder seems to be a factor that increase the grade of anxiety and this seems to favour the worsening and cronification of the dermatoses. These findings corroborates the studied theories and suport previous studies which applied the same methodology (Amorim-Gaudencio et al. 1996; Miguel-Tobal et al. 1995; Nogués Moyano, Gonzalez Barrón & Sifre Garcia, 2000).

On the other hand, we observed a tendency in patients of the dermatologic group to perceive a greater number of situations (ISRA's situations) as anxiety producing. This kind of situations were generally related to daily life *("when I think on all the things I have to do, in my work or when I study, at bedtime, without reason")*, situations that implicate evaluation or assumption of responsibilities *("after I make a mistake; when I think of my future or future problems and difficulties")*, phobic situations (*"when I have to travel by airplane or by boat, when I am in the middle of the crowd or in closed spaces"*), and mixed situations *("when I am going to arrive late to a date"* is a combination of evaluation and interpersonal anxiety, and *"when I wait for somebody in a crowded place"* has phobic and interpersonal elements). When faced with these situations patients emitted responses that were predominantly cognitive (e.g. responses related to the way of thinking), followed by responses of the physiological and motor type (e.g. activation of autonomic system). Related to stress life event

situations the study carried out by Harvima et al. (1996) reports on how actively spreading psoriasis was significantly associated with stressful life events for men but not for women, in opposition to our results.

These findings sustain the hypothesis that relates the binomial *situation x responses* of anxiety with the onset and chronification of psychodermatologic diseases, as Endler (1974) says in relation to the interactive theory that explain anxiety by addressing person characteristics (anxiety trait), the situation conditions (skin disorder) and person situation interaction (anxiety x skin disorder). The pronounced differences between the groups mentioned above, specially in situations of daily life and test anxiety, emphasize the presence of important stress levels in these kind of patients. Moreover, we have to emphasize the influence of cognitive factors in the interpretation of enviromental stimuli and their participation in the onset and progression of the dermatoses, as has been found in previous studies (Fortune et al., 1997; Gupta et al., 1997), related to the influence of the stress and anxiety on the onset and worsening of dermatoses. This association has been reported on several occasions, specially in relation with psoriasis and atopic dermatitis, although the authors reported that dermatitis patients are more chronically anxious than psoriasis patients (Al'Abadie, Kent & Gawkrodger, 1994; Gaston et al., 1991; Ginsburg et al., 1993).

For therapeutic purposes, the knowledge of individual responses to profiles of anxiety (C, P, M) allows professionals to provide an adequate orientation for the modification of altered responses, specially of the cognitive type in the dermatological patients. Koo and Phan, (1992) divided psychodermatologic conditions into three broad subgroups: 1) psychophysiological disorders in which the severity of primary cutaneous disease is influenced by the patients' emotions; 2) primary psychiatric disorders in which skin conditions are self-induced and reflect underlying psychopathological conditions; and 3) secondary psychiatric disorders in which the patients experience psychological problems as a result of disfigurement induced by skin conditions. In our opinion, the therapeutic approach should be based not only on pharmacologic therapy, but on some occasions it may be necessary to apply psychodermatologic techniques, such as psychotherapy, behavioral therapy, psychopharmacotherapy, and a cognitive-behavioral intervention. The latter could include the application of

conventional techniques used to control anxiety and/or stress. Futhermore, some studies report on the efficacy of group therapies for dermatoses patients (Seng & Nee, 1997). Likewise, intractable chronic dermatoses recalcitrant to conventional therapy may require combined therapy constituted by dermatologic therapy and psychotherapy (Koblenzer, 1995), independently of the gender but related to the psychologycal profile.

There are still many questions to clarify before we precisely understand the pathogenesis of some diseases and its relation with stress and anxiety. Some have suggested that exacerbation of psoriasis after stress might be related to the release of neuropeptides (Glinsking, et al., 1994). One of the most important mediators of stress, beta-endorphin, has been found to increase in patients with actively spreading plaque psoriasis (Glinsking et al., 1994) although they suggested that neuropeptide levels are directly related to the size of the psoriasis plaque and are produced by inflammatory cells rather than the result of activation of the pituitary-adrenal axis by chronic stress. Thus, they suggest the existence of intermediate stages between the cerebral control and the target organ (the skin). It would be interesting to correlate the different phases (activity and regression phases) of the disease and neuropeptide levels with the emotional profile of the patient.

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