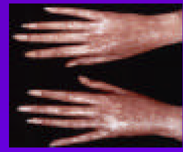


JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

Hand eczema - should psychological factors be considered in etiology or treatment?

V. Niemeier1, M. Nippesen1, J. Kupfer2, W.-B. Schill3, U. Gieler1

1. Department of Psychosomatic Medicine and Psychotherapy, Justus-Liebig-University Gießen, Germany (Director: Prof. Dr. Ch. Reimer)
2. Institute of Medical Psychology, Justus-Liebig-University Gießen, Germany (Director: Prof. Dr. D. Beckmann)
3. Department of Dermatology and Andrology, Justus-Liebig-University Gießen, Germany (Director: Prof. Dr. Dr.med. habil. W.-B. Schill)

Background: The etiology of hand eczema (HE) is very heterogeneous. Psychological influences on severity and coping in HE are only purely investigated.[1-3]

Objectives: In this hypothesis-seeking study, examination is made whether psychological factors correlate to somatic factors, in order to be able to estimate the possible need for psychosocial care of these patients.

The following questions were to be clarified:
- How many patients report stress as a contributing factor in the course of their HE?
- Are the different characteristics (e.g. age, educational level, severity, duration of disease) in the subgroups with respect to a subjective stress-dependence?
- Do the results of the patch tests (PT) contradict the stress experienced by the patient?
- Do the stress rating and the PT result influence coping with the disease?

Methods: In a cross – sectional study 101 hand eczema patients (f=49/m=52) with psoriasis (PSO)(n=26), dyshidrosis (DYS)(n=33) or contact dermatitis (CD)(n=42) were examined in regard to dermatological (diagnosis, severity, Erlanger Atopy-Score-EAS[4]), allergological (PT) and psychological aspects (Coping with Chronic Skin Diseases questionnaire (CSD)[5], Allover Depression Scale (ADS)[6], Social Readjustment Rating Scale (SRRS)[7], Visual Analog Scales (VAS) concerning itching, scratching and impediment. For the study, patients were divided into subgroups of High Stress-Responders (HIGH-SR) and Low Stress-Responders (LOW-SR) and according to positive or negative PT results (Group A-D, Fig. 1).

Study procedure and patient selection: The present study was performed in the allergological outpatient clinic of the Dermatological Department in the Justus-Liebig-University/ Gießen. The 120 consecutive patients with HE (main symptoms were limited mostly to the hands) granted informed consent to participation in the study, were given the test inventories and were requested to return these at the latest at the time of the second reading of the PT (after 72h). 115 patients returned evaluable questionnaires, so the return rate was more than 96%.
Initially, patients were enrolled in this study who could be assigned to one of 4 diagnosis groups:
1=Atopic Dermatitis (AD), 2=PSO, 3=CD or 4= DYS.

Patients: The patient collective comprised 54 men (47%, m) and 61 women (53%, w) with a mean age of 36.75 years (y.) (18-75 y.; Standard deviation (SD) 13.01). After assignment to the 4 diagnosis groups, the following distribution was observed:
n=14 (12.2%) with AD (w=12, m=2); n=26 (22.6%) with PSO (w=11, m=15); n=42 (36.5%) with CD (w=21, m=21); and n=33 (28.7%) with DYS (w=17, m=16).
The time of first manifestation (means) was 17.5 y. in AD (SD 9.5), 31.3 y in PSO. (SD 11.4), 31.5 y. in CD (SD 13.6) and 30.5 y. in DYS (SD 11,9).

In considering the patients within their original 4 diagnosis groups (AD, PSO, CD, DYS, n=115) it becomes apparent that the AD group (n=14) differs considerably statistically with respect to the group size, gender distribution and age from the other three groups. The AD-patients have a mean age of 29.9 years, and are therefore significantly younger than the patients in the other three diagnosis groups. Moreover, only two (of n=14) AD patients had a negative PT, of whom one each was among the HIGH-SR and. LOW-SR patients. With respect to the planned group divisions (A-D in HIGH-SR and LOW-SR and also PT pos vs PT neg; see Fig.1), therefore, only the diagnosis groups PSO, CD and DYS are compared to one another in all further statistical procedures (n=101)(Fig. 1).

The patients with PSO, CD and DYS were assigned to 4 subgroups (A-D, s. Fig.1), whereby assignment depended both on the stress-dependence of the disease according to the *subjective* rating by the patient (HIGH-SR vs LOW-SR) , and also on the results of the PT (PT positive vs negative).

Severity: It is difficult to make an objective rating of the severity of HE. A severity index for HE has only been published for dyshidrosis[8], but this cannot be used unreservedly with reference to other types of HE. For this reason, we developed our own severity score for this study, which covers the various HE groups. The rating and categorization of patients with respect to severity of their disease was made using the following method:
The patients were asked to rate the condition of their skin themselves. Questions included both the state of the skin at the time of the worst outbreak of the disease and a rating of the subjective state of the skin at the time of examination. All patients were shown the same clinical sample photographs of HE with 5 different severity grades as a reference (Severity grades 1-5; from mild to very severe) which helped in the subjective evaluation and the subsequent classification.

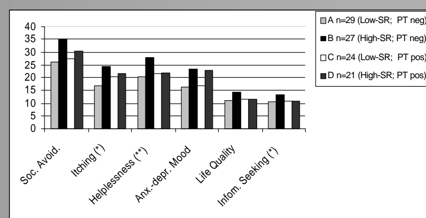
Stress-Reagibility (HIGH-SR vs LOW-SR): Already Gupta et al.[9] compared the psychocutaneous characteristics of psoriasis patients who reported that stress exacerbated their disease (HIGH-SR) to the subgroup who reported no significant association between stress and their psoriasis (LOW-SR) and found differences between the groups. For this reason, we asked the patients in our study the following question: "In your opinion, how does your skin react to stress with respect to the severity of the disease?". The question could be answered on a 5-point scale (not at all=0; a little=1; moderately=2; strongly=3, very strongly=4).

Table 1:
Significant differences in the comparison of the High Stress-Responders HIGH-SR (47.52%; n=48) and Low Stress-Responders LOW-SR (52.48%; n=53)
n=101 (without the AD group)

	HIGH-SR n=48 mean (sd)	LOW-SR n=53 mean (sd)	p
Age (y)	33.63 (11.36)	41.34 (13.82)	**
Initial manifestation (y)	26.85 (10.67)	34.68 (12.77)	***
Atopy-Score	11.63 (5.88)	9.39 (5.39)	**
Pruritus	5.40 (2.20)	3.98 (2.64)	**
Scratching	4.85 (2.14)	3.60 (2.60)	**

sd = standard deviation
** p = 0.01; *** p = 0.001; y= years

Fig. 1:
HIGH-SR vs LOW-SR and PT results (pos vs neg) in the CSD–Interaction effects in the two-factorial variance analysis



Means. (*) p = 0.05; (**) p = 0.01; (***) p = 0.001 (Two-Factorial Variance Analysis)

Results: HIGH-SR vs LOW-SR *(PSO, CD, DYS; n total =101)*
The groups of all patients in these three diagnosis groups who identified stress as a factor influencing the disease (HIGH-SR n=48; 47.52%) is younger on the average than the group which did not rate stress as relevant (p 0.01). Moreover, at the time of first onset of the disease, they were younger (p 0.001). They have higher values in the atopy score (p 0.01), and in the extent of itching and scratching (both p 0.01) and feel more seriously impeded by their disease (p 0.01) (Table 1).
The HIGH-SR showed higher values in the sum of the ADS items (p 0.01) as well as in the influencing Life-Events (p 0.001).
Likewise, the HIGH-SR had significantly higher values in the CSD in all scales: Social anxiety and avoidance (p 0.001), vicious circle of itching and scratching (p 0.001), helplessness (p 0.01), anxious-depressive mood (p 0.001), impact on quality of life (p 0.05) as well as information seeking (p 0.05).

Two-factorial analysis of variance (HIGH-SR vs LOW-SR and PT pos vs neg):
In the two-factorial analysis of variance (HIGH-SR vs LOW-SR and PT pos vs neg) there was hardly any difference between the groups of patients with positive PT (HIGH-SR and LOW-SR), while the patients with negative PT and concurrent subjective feeling of susceptibility to stress (Group B, n=27; Fig. 1) had particularly conspicuous results.
A significant interaction effect (r=0.05) could be demonstrated for the intensity of itching. Especially those HIGH-SR with negative PT reported frequent itching. Their difficulties in coping with the disease can be seen especially in the highest values in all scales of the CSD (Fig. 1). Significant interaction effects were found in the scales vicious circle of itching and scratching (p 0.05), helplessness (p 0.01) und information seeking (s. Fig 1).

Discussion: 47.52% of the patients with HE are convinced that "stress" influences the course of their disease. ANOVA (analysis of variance) shows that the subjective susceptibility to stress correlates with higher severity-scores, more itching, higher depression scores and more life-events. Patients in this stress responder group were younger and the onset of the disease was earlier compared to patients without subjective susceptibility to stress.
In scales of the CSD especially patients with negative PT results and subjective susceptibility to stress stated significantly higher values concerning the scales of vicious circle of itching and scratching, helplessness and information seeking.
Especially patients with a negative PT and subjective susceptibility to stress seem to have a higher need for adjuvant psychological care.

References:

1. Hansen O, Küchler T, Lotz G et al. Es juckt mich in den Fingern, aber mir sind die Hände gebunden. Z Psychosom Med Psychoanal 1981: 27: 275-290.2.
2. Tausk F A. Stress and the skin. Arch Dermatol. 2001: 137: 78-82.
3. Wirth K. Psychosomatik des Kontaktekzems. Psychomed 1989: 1: 43-46.
4. Diepgen TL, Sauerbrei W, Fartasch M. Development and Validation of Diagnostic Scores for Atopic Dermatitis Incorporating Criteria of Data Quality and Practical Usefulness. J Clin Epidemiol 1996: 49: 1021-1038.
5. Stangier U, Gieler U, Ehlers, A. Entwicklung eines Fragebogens zur Krankheitsbewältigung bei Hauterkrankungen (Marburger Haut-Fragebogen, MHF). Diagnostica 1997: 44: 30-40.
6. Hautzinger M, Bailer, M. Allgemeine Depressions Skala, Manual. Beltz Test Gesellschaft, 1993.
7. Holmes TH, Rahe RH. In: Katschnig H (Hrsg.). Sozialer Stress und psychische Erkrankung: Lebensverändernde Ereignisse als Ursache seelischer Störungen? Urban und Schwarzenberg 1980: 160-166.
8. Vocks E, Plotz SG, Ring J. The Dyshidrotic Eczema Area and Severity Index – A score developed for the assessment of dyshidrotic eczema. Dermatology. 1999: 198: 265-269.
9. Gupta MA, Gupta AK, Kirkby S et al. A psychocutaneous profile of psoriasis patients who are stress reactors. A study of 127 patients. Gen Hosp Psychiatry 1989: 11: 166-173.