

Effects of Systematic Patient Education in Skin Care and Protection in a Hand Eczema Clinic

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Key Words

Hand eczema · Preventive program · Skin care · Protection · Patient education

Abstract

Background: Hand eczema has a high impact on patients' quality of life. The treatment focuses on improving skin barrier function. **Objectives:** To evaluate the effects and acceptance of a novel educational program for patients with hand eczema. **Methods:** Retrospectively, the records of 36 patients who attended the prevention program and follow-up visits were analyzed. Physician global assessment (PGA) scores, acceptance and behavioral changes were assessed. **Results:** In 67% of patients, an improvement of the hand eczema could be attributed to the effects of our educational program. The mean PGA score significantly decreased from 3 before education to 2.2 during follow-up. Behavioral changes in both skin care and protection were reported in 81 and 86%, respectively. **Conclusions:** Our educational program had a positive effect on clinical outcome as well as adherence to skin care and protection measures. Its integration in a hand eczema clinic was feasible and well accepted by the patients.

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Introduction

Hand eczema is a common skin disease [1] with a cumulative prevalence of 15% [2] and an incidence of 5 per 1,000 person-years [3]. A follow-up study over 15 years revealed a chronic disease course in 28% of hand eczema patients [4]. In patients with occupational hand eczema, only 28–40% reported total recovery [5, 6]. Poor prognosis and persistence of hand eczema have been found to be correlated with severe initial disease and its duration before diagnosis [6, 7]. In European countries, skin diseases are among the top three in the list of occupational diseases [8]. Therefore, hand eczema has a number of socio-economic consequences. Sick leave due to hand eczema has been reported by 23–48% of patients [4, 5]. Up to one third of patients is forced to change job or occupation, and one fourth, in particular elderly patients with occupational hand eczema, lose their job [6]. Moreover, hand eczema has a high impact on the patients' quality of life which is comparable with that of psoriasis [9].

The origin of hand eczema is heterogeneous and comprises irritant and allergic contact dermatitis as well as atopic dermatitis. An impaired skin barrier due to genetic and/or exogenous factors plays a key role in the pathogenesis of hand eczema. Therefore, treatment strategies should follow restoration of the skin barrier and thus include skin care and protection procedures for both pri-

Table 1. Patient characteristics

Number of patients	36
Mean age (range)	40.4 years (18–64 years)
Gender	24 male, 12 female
Mean follow-up (range)	11 weeks (2–35 weeks)
Duration of hand eczema	5.15 years (1 week to 41 years)
Chronic hand eczema (>3 months)	14 (38.9%)
<i>Job category</i>	
Metal and electronic	8 (22.2%)
Construction worker	5 (13.9%)
Cleaning	4 (11.1%)
Print, chemical, textile, plastic	3 (8.3%)
Food and catering	3 (8.3%)
Care, nursing and health	3 (8.3%)
Office and administration	3 (8.3%)
Glass, ceramic	1 (2.8%)
Other	6 (16.7%)
<i>Etiology of hand eczema</i>	
Irritant	8 (22.2%)
Irritant and atopic	16 (44.4%)
Irritant and allergic contact dermatitis	7 (19.4%)
Irritant, atopic, allergic	5 (13.9%)
Reported occupational hand eczema	31 (86.1%)
<i>Concomitant therapy</i>	
Systemic therapy	6 (16.7%)
Potent topical CS	6 (16.7%)
Topical calcineurin inhibitors + CS	3 (8.3%)
Topical calcineurin inhibitors	8 (22.2%)

Figures are number of patients with frequency in parentheses unless indicated otherwise. CS = Corticosteroids.

vate and occupational activities. In order to provide adequate education and demonstration for patients, we have developed a systematic prevention program and introduced it into daily practice. All patients attending the hand eczema clinic for diagnostic procedures and treatment are instructed by a specialized nurse, allowing adequate time for education and demonstration. We have been interested in the effects of this novel educational approach in addition to conventional dermatological therapy, with special focus on acceptance and its effect on disease severity in patients with hand eczema.

Methods

Since November 2010, hand eczema patients referred to our university department are regularly instructed on skin care and protection. We have established an educational program comprising basic knowledge on skin barrier function, optimal cleansing and care with practical demonstrations, as well as skin protection, including adequate use of gloves and occupation-specific procedures, avoidance of irritants and allergens. Individual patient instructions are given by an experienced nurse. In order to evaluate

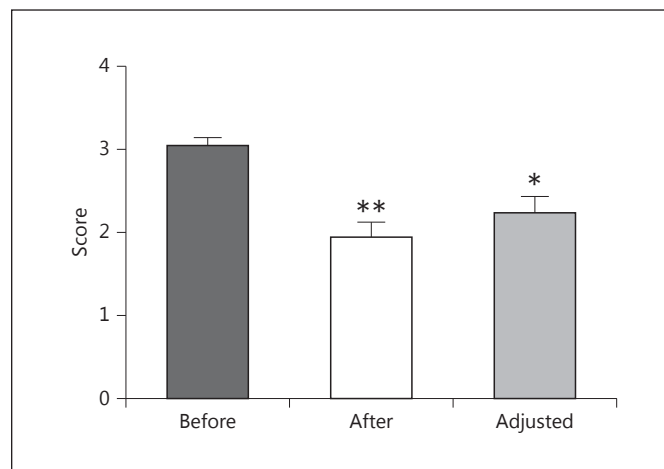


Fig. 1. PGA score before and after patient instruction with (* $p < 0.01$) and without (** $p < 0.0001$) adjustment according to pharmacological therapy.

the effects of this educational program, 36 patients were retrospectively investigated. On the day of instruction (baseline) and during the next follow-up visit, physician global assessment (PGA) scores based on modified total lesion symptom score (mTLSS) were assessed according to Ruzicka et al. [10]. Severity of hand eczema was rated as severe (4), moderate (3), mild (2), almost clear (1) or clear (0). In order to exclude the effect of additional topical or systemic therapy, we corrected the PGA/mTLSS score by the expected improvement related to pharmacological treatment: -1.50, systemic therapy with alitretinoin (30 mg/day), methotrexate (25 mg/week) or ciclosporin (2.5–5 mg/kg body weight/day); -1.00, topical corticosteroids (class III and IV, q.d.); -0.75, topical tacrolimus 0.1% (b.i.d., 5 days a week) and topical corticosteroids (q.d., 2 days a week); -0.25, topical calcineurin inhibitors (b.i.d.); 0.00, no pharmacological therapy. Furthermore, patients' acceptance of the instructions and behavioral changes with particular interest in application of skin care and protection products, cleansing and wearing gloves were recorded. The study was approved by the Internal Review Board of the Inselspital.

Statistical Analysis

Absolute and relative patient numbers as well as mean values (\pm SEM) or ranges as indicated are presented. To compare severity scores before and after instruction, a non-parametric test (Friedman test) was applied using GraphPad Prism 6.01 (GraphPad Software, San Diego, Calif., USA).

Results

Demographics

Retrospectively, 36 patients (24 male, 12 female, mean age 40.6 ± 14.9 years, range 18–64 years) attending the preventive program between November 2010 and May 2012 and having a follow-up visit (11 ± 8 weeks) were in-

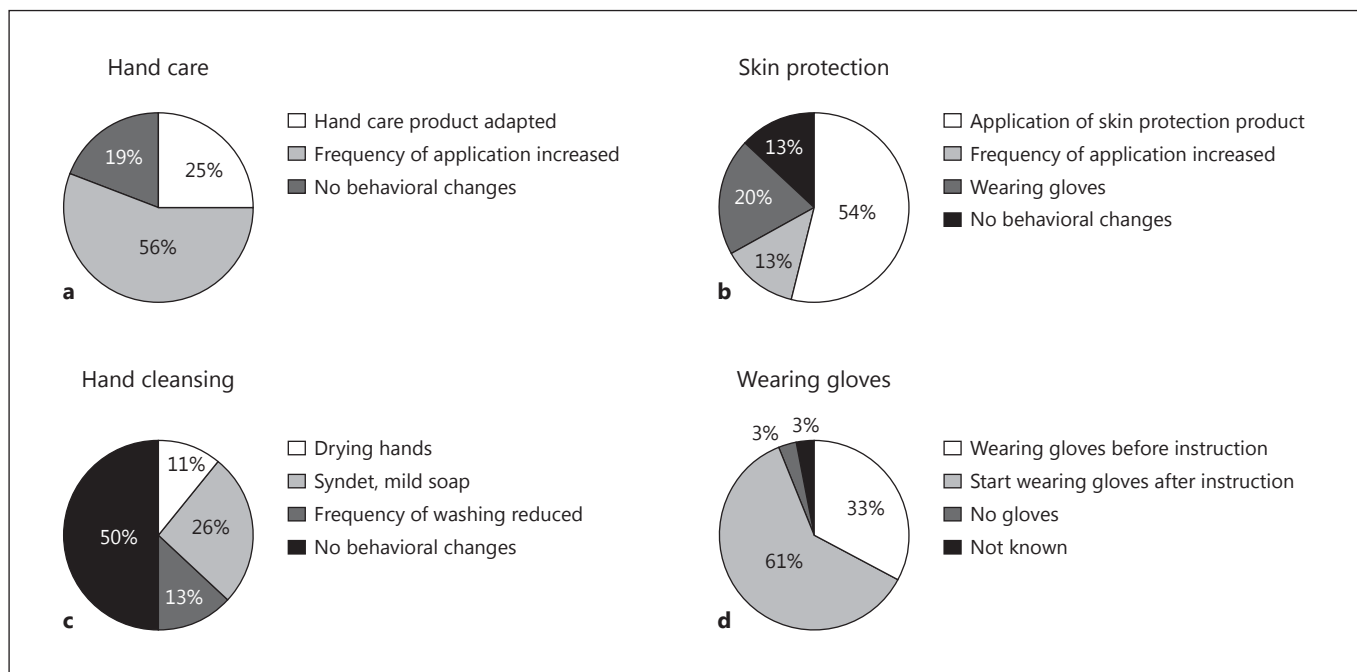


Fig. 2. Behavioral changes in skin care and protection after attending the educational program.

vestigated (table 1). In all patients, the hand eczema was caused by irritant contact dermatitis. In 28 patients (78%), concomitant atopic hand eczema and/or allergic contact dermatitis were additionally diagnosed. In 31 patients (86%), an occupational trigger factor was suspected.

Significant Improvement of Hand Eczema

Before educational instruction, the severity score of hand eczema as assessed by PGA/mTLSS was 3.0 ± 0.1 , corresponding to moderate severity. Until the follow-up visit, the hand eczema improved in 27 patients (75%). The PGA/mTLSS score decreased by 1.1 ± 0.17 , resulting in a mean score of 1.9 ± 0.17 corresponding to mild hand eczema at follow-up ($p < 0.0001$) (fig. 1).

In order to evaluate the effect of the preventive program independent of pharmacological treatment, we subtracted the estimated improvement by concomitant topical and/or systemic therapy, resulting in an adjusted score at the follow-up visit. The mean adjusted score was 2.2 ± 0.2 and thus significantly lower compared with the baseline score ($p < 0.0001$) (fig. 1). Consequently, the reduction in the PGA/mTLSS by 0.8 ± 0.15 could be attributed to the effect of the educational program. Altogether, this positive effect of the instructions on improvement of skin symptoms was observed in 24 patients (67%).

Behavioral Changes following the Educational Program

Furthermore, we were interested whether patients changed their behavior after attending the educational program. Hand care, such as application of emollients, was improved by 29 patients (81%) (fig. 2a). Skin protection measures, such as wearing gloves, application of protection cream or foam, were initiated or adapted by 31 patients (86%) (fig. 2b). 17 patients (47%) changed their hand cleansing procedure, e.g. they washed less frequently, used syndets or improved drying (fig. 2c). Before the instructions, one third of the patients reported to use gloves for skin protection. After attending the educational program, an additional 22 patients (61%) had started wearing gloves (fig. 2d). Altogether, 33 patients (92%) stated to have profited from the educational program.

Discussion

We report on our experiences and effects of a systematic educational program on skin care and protection for patients with hand eczema. Patient education and practical demonstrations have been integrated in our hand eczema clinic since 2010. We have developed illustrated

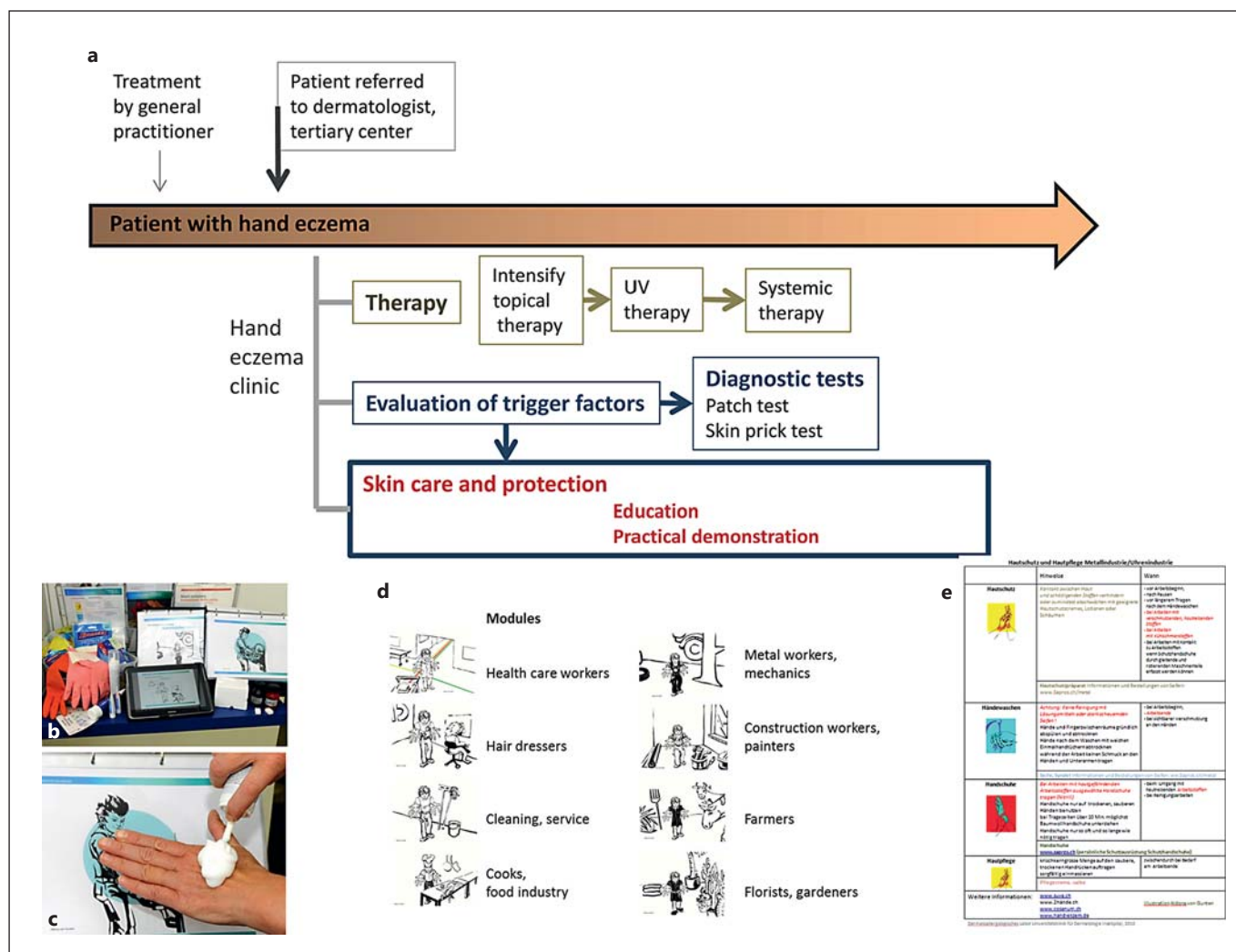


Fig. 3. Patient education integrated in the hand eczema clinic. **a** Patients referred to our hand eczema clinic are examined by a dermatologist, get dermatological therapy, evaluation of trigger factors including diagnostic tests and patient education in skin care and protection, including practical demonstrations by a

nurse. **b** Education material on flip charts and tablet, set of gloves, care and protection products. **c** Practical demonstration of appropriate use of skin protection products. **d** Modules for occupation-specific instructions. **e** Leaflet with individual instructions for skin protection, cleansing, wearing gloves and care.

presentations with general and work-specific information (nine modules, used as flip charts or on a tablet), a kit for practical demonstrations, e.g. gloves, protection measures as well as short handouts summarizing general and individual preventive measures. The aims of skin protection courses are directed towards providing knowledge, increasing adherence to therapeutic and protective measures as well as preventing chronic and occupational diseases [11]. A recent systematic review reported that preventive programs are effective for workers at high risk for or with hand eczema with respect to clinical outcome

and adherence to preventive measures [12]. We observed a significant improvement of hand eczema at follow-up visits after approximately 3 months as a result of both pharmacological treatment and patient education.

Our preventive program, which is coupled with dermatological consultations, provides information on and demonstrates practical application of skin protection measures at work place and home to all patients referred to the eczema clinic. These individual instructions by a specialized nurse for about 15–30 min seemed feasible considering patient access, time, man power and costs.

Interestingly, two third of our patients had a positive effect on clinical outcome that could be assigned to patient education alone or in combination with pharmacological treatment. These data are in agreement with previously published work indicating that interdisciplinary, secondary prevention programs, including integrated care for patients with hand eczema, result in a significant reduction of skin symptoms as well as an increased remaining at work [13, 14]. In a randomized study, skin care education and individual counseling were shown to significantly improve symptoms and quality of life in health care workers with hand eczema [15]. Our educational program was well accepted by the large majority of the patients. The rate of patients applying skin care and protection measures substantially increased upon individual instructions. However, the results are not optimal in some respects, e.g. hand cleansing and care. Here, more intense

education and practical instructions are required in the future.

In summary, we report a novel, intense preventive program on skin care and protection measures for patients with hand eczema that is integrated in a hand eczema clinic (fig. 3). Education and practical demonstrations significantly helped improve skin symptoms and increased the adherence to skin care and protection. This preventive program could easily be adapted by other dermatology centers. Further research has to evaluate the long-term effects as well as the cost-benefit ratio of such educational programs.

Disclosure Statement

The authors have no conflict of interest to disclose.

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