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Research Article

Clinical Manifestations and Management of Hand Eczema: Analysis of One-Year Data at a Tertiary Care Center

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Abstract

Background: Hand Eczema (HE) is a common chronic skin disease and is considered as one of the most common occupational skin disorders. Yet, differences in demographic factors, clinical manifestation and treatment between patients with and without occupational hand eczema remain insufficiently characterized.

Objective: To assess one-year data on frequency, occupational exposure, clinical subtypes and the treatment modalities of patients diagnosed with hand eczema seen in a tertiary care center.

Methods: The data analysis was performed from clinical records using a standardized data collection form. Patients (age ≥ 18 years) with the diagnosis of hand eczema were included.

Results: 2023 193 patients were identified. The average age was 47 years with a higher proportion of female patients (55%). 50 of 193 patients had occupational hand eczema. 14% of the cohort presented through the emergency department (n=27), of these 2 were hospitalized. The overall annual hospitalization rate of the HE cohort reached 9% (n=18). Patients received a topical anti-inflammatory treatment with corticosteroid-ointments (100%), but > 25% required a systemic treatment. Non-specified hand eczema was coded most frequently with 38% of all non-occupational hand eczema cases. Irritant hand eczema was most frequently diagnosed in occupational hand eczema (42%).

Conclusion: HE patients are seen in a tertiary specialized university medical center, including emergency presentation and hospitalization. Most cases were classified as non-specified hand eczema indicating the need of an accurate coding system for HE. Only by standardized documentation the quality and interpretability of research on hand eczema can be facilitated.

Keywords: Hand Eczema; Occupational; Emergency Presentation; Hospitalization; Subtypes; Diagnostic Coding; Clinical Epidemiology

Abbreviations

HE: Hand Eczema; CHE: Chronic Hand Eczema

Introduction

Hand Eczema (HE) is a chronic skin disease [1]. Guidelines for the diagnosis, diagnostics and treatment of hand eczema recommend a classification based on etiology and clinical manifestation [1]. The etiological classification of hand eczema differentiates between irritant and allergic contact dermatitis, atopic hand eczema and protein contact dermatitis (with and

without urticaria). The clinical classification is based on the morphological presentation. It differentiates between hyperkeratotic, recurrent vesicular and nummular hand eczema and pulpitis. Mixed manifestations with more than one etiological and clinical subtypes are possible [1,2]. As the subtypes often overlap, a clear and standardized classification remains challenging [3, 4].

The prevalence of HE in the general population is high [5]. The reported one-year prevalence data vary from 9.1% to 4.7% in the general population [6-8]. The employment status and the degree of urbanization constitute as major influencing factors on the prevalence of HE [8].

The prevalence and risk for hand eczema are increased in occupations within an elevated exposure to skin irritants (health workers, cleaning workers) [8-10]. Accordingly, hand eczema belongs to the most common occupational diseases [10-12]. It can be a significant cause of work-related impairments and may lead, over time, to inability to maintain professional employment and may even result in unemployment [13,14].

The therapeutic approach for Chronic Hand Eczema (CHE) is multimodal and should always be individualized, considering the etiology, progression and severity of the condition as well as occupational considerations, comorbidities and psychosocial burden [1,2,15].

General principles of HE treatment include the identification and avoidance of possible exogenous trigger factors and the continued basic skin care with emollients/moisturizers to improve and maintain the skin barrier function. The topical anti-inflammatory treatment of CHE is performed with topical corticosteroids for short-term application. Calcineurin inhibitors are preferably used in atopic hand eczema. Recently the topical JAK inhibitor delgocitinib has also been authorized in Europe for the treatment in chronic hand eczema. Adjunctive phototherapy may be considered in cases of persistent and chronic hand eczema [1,2]. For severe chronic hand eczema, alitretinoin is available in Europe as a systemic therapeutic option. Other systemic therapies such as ciclosporin A, dupilumab and tralokinumab or systemic JAK inhibitors are only approved for moderate to severe atopic dermatitis and can only be used to treat hand eczema in combination with atopic dermatitis. Systemic glucocorticoids should only be used in acute and severe inflammation for short-term treatment [1,2].

The objective of this data analysis was to assess the frequency, clinical subtypes, treatment and hospitalization rate of HE in a tertiary, specialized medical center (University hospital) to better understand its medical role in a highly specialized environment.

Methodology

Patients (age ≥ 18 years) presenting 2023 at the hospital (Department of Dermatology, Venerology and Allergology, Charité Universitätsmedizin Berlin Campus Mitte) with the diagnosis of hand eczema were included in the analysis. The data was searched for the classification code of L30.9 which is the code for patients with hand eczema. The data were extracted from clinical records using standardized data acquisition including age, sex, diagnosis, treatments/interventions and occupation. All data were anonymized prior to analysis to protect patient confidentiality. Categorical variables were reported as frequencies and percentages. Continuous variables were summarized using descriptive statistics, such as mean or median. This study was conducted in accordance with the principles of the declaration of Helsinki and national regulations. Ethical approval was obtained from the institutional ethics committee. All data were anonymized before analysis.

Results

Description of the Study Population

We identified 193 patients (age ≥ 18 years) seen 2023 for acute or chronic hand eczema in a university medical setting. The proportion of females (55%) (Table 1) was slightly increased. The average age was 47 years. Most of the patients were seen in an outpatient setting (n=149). Of note 14% of the cohort presented via the emergency department (n=27), of whom 2 patients were admitted for inpatient care. Overall, 9% (n=18) of the HE cohort were hospitalized. 50 of 193 patients (26%) had occupational hand eczema, 31 of these (62%) were female patients. 50% of patients with occupational hand eczema work in nursing or medical fields (n=24). Other professions like craftsmen, laboratory workers and cleaning staff were observed.

Clinical Morphology of Hand Eczema in the Study Population

Fig. 1 shows the distribution based on classification, categorized into occupational hand eczema and non-occupational hand eczema. Non-specified hand eczema was coded most frequently with 38% (n=55) of all non-occupational hand eczema cases, followed by hyperkeratotic hand eczema (28%, n=40). Among the occupational hand eczema, irritant hand eczema was most commonly diagnosed (42%, n=21), followed by unspecified hand eczema reaching 22% (n=11).

Treatment Profile in the Study Cohort

The analysis of the treatment profile shows that all patients received a topical anti-inflammatory treatment with corticosteroid-ointments. Corticosteroids of class 3 were prescribed most frequently (80%). Also stronger corticosteroid ointments (class 4) were often applied (52% of the patients). Additionally, more than half of the patients were treated with topical calcineurin inhibitors (57%). Adjunct UV therapy was performed in 47 patients. As part of a clinical study one patient was treated with a topical JAK inhibitor (delgocitinib).

More than 25% of the identified patients (n=53) received in addition to a topical anti-inflammatory treatment a systemic therapy. Alitretinoin was the most frequently used systemic therapy (21%) within our cohort. Much less frequently other systemic treatments like biologics, ciclosporin A, Methotrexate (MTX), acitretin and prednisolone were used. Among the group of patients suffering from occupational hand eczema, 14% received a systemic therapy with either alitretinoin or a biologic agent. Fig. 2 shows the treatment profile from the 193 patients, categorized into occupational cases and non-occupational cases.

	Number of Patients (n)	**Percentage**
Overall	193	100%
Sex		
Female	106	55%
Male	87	45%
Form of Presentation		
Emergency Department	25	13%
Emergency Department + Inpatient	2	1%
Emergency Department + Partly Inpatient	0	0%
Partly Inpatient	16	8%
Interdisciplinary Consultation	1	1%
Outpatient Consultation	149	77%
Age		
18-39	69	36%
40-59	73	38%
60-79	50	26%
≥ 80	1	< 1%
Occupational Hand Eczema		
Occupational HE, Overall	50	26%
Occupational HE Female	31	62%
Occupational HE Male	19	38%

Table 1: Demographic data from 193 patients with Hand Eczema (HE).

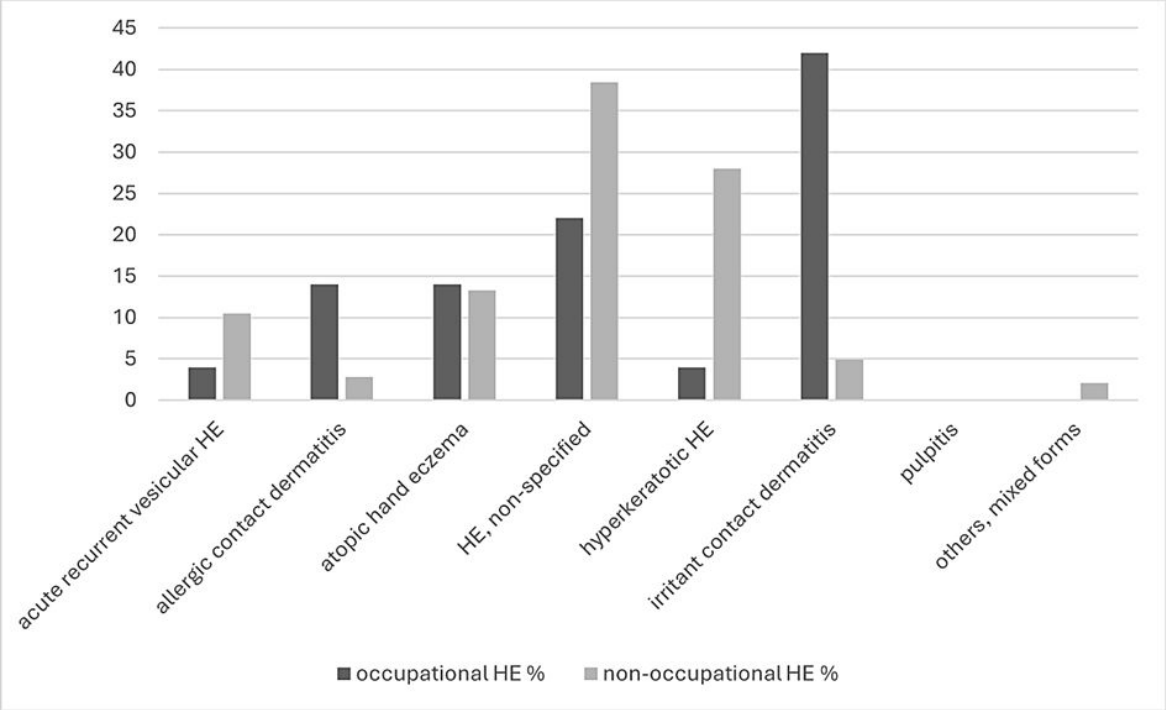

Figure 1: Classification of Hand Eczema (HE) from 193 patients, categorized into occupational cases and non-occupational cases.

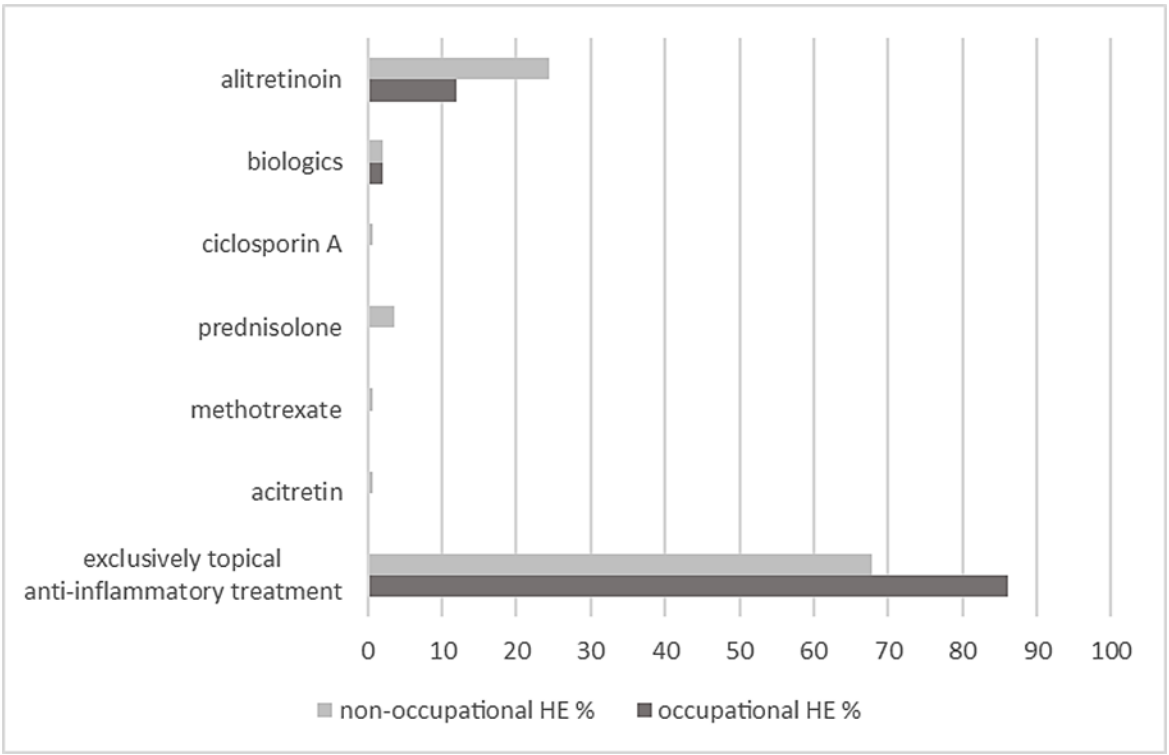

Figure 2: Treatment of Hand Eczema (HE) in relation to occupational (n= 50) and non-occupational cases (n=143).

Discussion

Hand eczema is frequent in the general population and can manifest in a mild to severe outcome. This study shows that hand eczema patients are not infrequently seen in a highly specialized university medical center. Most identified patients received class 3 and 4 corticosteroids and up to one third a systemic treatment indicating the severity of the cases. We even identified some patients presented at the emergency department who were hospitalized. These findings emphasize that hand eczema patients require care even in a tertiary medical setting.

26% of the patients of our cohort had occupational hand eczema. This finding is consistent with previous data demonstrating the substantial impact of occupational exposure on the development of hand eczema [9,16,17]. According to the Norwegian HUNT study, the overall prevalence of hand eczema in the general population was 11.3%, while 4.8% of these cases were classified as work-related [18]. Consequently, over 40% of all hand eczema cases in this population were work-related, highlighting the substantial influence of occupational factors to the development of hand eczema.

The risk and prevalence of hand eczema are elevated in occupations with increased exposure to skin irritants [8-10]. In our study the healthcare professionals dominated in the cohort of occupational HE. In line with this, a meta-analysis demonstrated that healthcare workers have a substantially higher risk of developing hand eczema compared to the general population, largely due to occupational exposures such as frequent hand washing and "wet work" [19]. In the non-occupational HE office workers were most frequent. Even when the risk profile for HE is considered low in office workers, they are still at risk of developing hand eczema [16].

Most cases in our cohort were ICD classified as non-specified hand eczema. This might relate to its heterogeneous pathogenesis and the overlap of etiological and clinical subtypes. In chronic hand eczema, multiple pathogenic factors can contribute to the outcome simultaneously, resulting in mixed forms that might be difficult to categorize within traditional classification systems (e.g., irritant, allergic, atopic) and leading to limitations in existing classification systems [4,15]. Among occupational HE the irritant form was the most frequent subtype and is line with the literature [12,20,21].

The proportion of atopic HE was comparable in occupational and non-occupational groups, suggesting that atopic predisposition facilitates the development of hand eczema independent from the occupational exposure. Nevertheless, patients suffering from atopic hand eczema should avoid professions with an increased exposure to irritants and potential contact allergens [22].
Allergic contact dermatitis was observed more frequently in occupational hand eczema, particularly in workers exposed to contact allergens like rubber additives or disinfectants [20,23]. While irritant contact dermatitis remains the most common subtype in occupational settings, allergic mechanisms can contribute substantially to the etiology of hand eczema in high-risk occupational groups, emphasizing the importance of identifying and managing relevant workplace allergens.

All patients from this cohort received a topical anti-inflammatory therapy with corticosteroid ointments, which was also the most frequently used treatment compared to other therapeutic options. Guidelines for the management of hand eczema consistently recommend topical corticosteroids as the standard therapy [1]. In real world practice, topical corticosteroids represent the most frequently prescribed class of medications for hand eczema, with over 70 % of cases receiving this treatment [24]. However, the prolonged use of potent topical steroids is associated with adverse effects such as skin atrophy and impaired barrier function [25-28]. This highlights the need for careful duration management and adjunctive strategies in the management of hand eczema. Alitretinoin was the most frequently used systemic treatment for hand eczema in our cohort. Other systemic therapies, including methotrexate, ciclosporin A and dupilumab are not approved in Germany for the treatment of chronic hand eczema. Their use is restricted to other primary dermatological conditions such as psoriasis (methotrexate) or atopic dermatitis (ciclosporin A and dupilumab) [1,2]. Chronic occupational hand eczema represents a substantial burden for patients but also the healthcare system. The observation that even emergency departments are consulted by patients with hand eczema suggests its considerable subjective burden and gaps of the healthcare system for such patients.

A key methodological limitation is the lack of a specific ICD code for hand eczema. Inconsistent coding complicates the valid and comprehensive assessment of disease prevalence. Thus, data with the Code L20.8 (other atopic eczema) including the atopic hand eczema were not analyzed in this study. Other relevant codes like L24.0 (toxic contact dermatitis) may also cover hand eczema among other skin dermatitis. This limitation regarding accurate coding may result in an underestimation of the real-world situation.

Another limitation of the study are inconsistencies in documentation with limited information regarding disease severity, diagnostic data and occupational influence. The lack of standardized data and incomplete records affect the accuracy of patient classification and hinder the comparison of subgroups. Standardized documentation is essential to improve the quality and interpretability of research on hand eczema.

Conclusion

Our data underpin the need for a precise and accurate coding and classification system of hand eczema, but also the need for a structurally improved care system for patients with (chronic) hand eczema, such as an early dermatological diagnosis, severity-oriented treatment concepts and an interdisciplinary cooperation between e.g. general practitioners or occupational physicians. Only this approach will support to adequately capture and effectively reduce the actual disease burden.

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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Data Availability Statement

Not applicable.

Ethical Statement

Ethical approval was obtained from the institutional ethics committee (EA4/257/25).

Informed Consent Statement

Informed consent was taken for this study.

Authors' Contributions

All authors contributed equally to this paper.

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