More than a Handful: Prevalence and Costs of Hand Dermatitis

Hand dermatitis or eczema, which is defined as inflammation of the hand, is a fairly common skin complaint. In a widely cited analysis of the epidemiology of hand eczema in the general population based on 36 studies conducted between 1964 and 2007, Thyssen and coworkers found that the point prevalence was about 4%. The 1-year prevalence rate was higher—almost 10%—and ranged between more than 6% to about 14%. The lifetime prevalence rate was even higher at about 15%. These rates were relatively stable across the study period. The median incidence was 5.5 cases/1000 person-years with a range of 3.3 to 8.8. When these data were analyzed by gender, women, with 9.6 cases/1000 person-year (range 4.6 to 11.4), appeared to be at greater risk than men (mean 4 cases/1000 person-years, range 1.4 to 7.4), a finding supported by most other studies. In the population of patients referred for patch testing, the prevalence continues to climb. In a study based on 22,025 such patients who underwent patch testing to the standard series of the North American Contact Dermatitis group between 1994 and 2004, 31.6% of the patients had hand involvement. And the authors thought that this percentage likely underestimated the prevalence of hand dermatitis. In other words, more than a handful of individuals suffer from this condition!

Besides women, other high-risk groups for developing hand dermatitis include patients with atopy—widely recognized as the most important risk factor—and patients with childhood dermatitis. Youth itself is a risk factor: a third of the cases of hand dermatitis may occur in patients younger than 20 years. The prevalence has been found to be 7% among 12- to 16-year olds and 10% among 16- to 19-year-olds. Atopy has been attributed to be the cause in younger age groups while entering the workforce may be a factor in the older group.

Undoubtedly, occupation is major factor in the development of hand dermatitis—an impressive 80% of all cases of occupational dermatitis involve the hands. Professions associated with frequent wet work, such as hair dressing, housekeeping, baking, and bartending, are on the list of at-risk occupations for hand dermatitis. Health care workers are another group prone to hand dermatitis—perhaps not a surprising finding, given their need for constant hand cleaning and disinfecting coupled with the use of protective gloves. The frequency of hand dermatitis among

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nurses in the United States, for example, may be as high as 33%. Construction and cement workers; machinists and other metal workers; welders and solderers, tile workers; florists; painters and varnishers; mechanics; and forest, fishery, and agricultural workers are among some of the other occupations reported to be associated with a risk of dermatitis.

The psychosocial costs associated with hand dermatitis can be substantial. In a recent survey, 89% of the respondents with hand eczema reported being embarrassed about their condition. As a result, 70% wore gloves or kept their hand in their pockets, and 74% reported that their skin condition affected how they touched other people or handled objects. Twenty-seven percent reported concomitant difficulties in interpersonal and intimate relationships. Besides experiencing changes in their daily activities or quitting hobbies, these patients have also been reported to experience sleep disturbances and mood swings. Clinicians should not underestimate the adverse effects that hand dermatitis can have on patients’ quality of life.

The economic costs can be equally distressing and may be on the same level as those associated with moderate to severe psoriasis. Thyssen and coworkers concluded that about 20% of patients take more than 7 days of sick leave related to their hand eczema while 10% change jobs. In a Swedish study, women with hand eczema changed jobs at an even higher frequency—15.5%. Problems getting a job have also been significantly associated with being a woman with hand eczema. A Canadian study reported that the cost of hand dermatitis ranged from $390 to $737 million Canadian dollars each year. A recent analysis based on six cost studies (three from Germany and one each from Italy, the Netherlands, and the United States) found that the mean annual indirect cost per patient, which primarily reflected absenteeism, ranged from 100 to 6846 Euros (~$112 to $7661) while the mean direct cost per patient ranged from 521 to 3829 Euros (~$583 to $4285).

The mean annual total costs per patient ranged from 1712 to 9792 Euros (~$1916 to $10,950). Costs tended to increase with severity of hand dermatitis reflecting the intensive treatment needed to care for the condition. Multiplying these costs across the 10% of the population estimated to be affected with hand dermatitis each year underscores the need for accurate diagnosis, appropriate treatment, and prevention of hand dermatitis (topics addressed in the next two articles) to decrease the related health care burden.

References
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Sunaga T, Belasto DV. Occupational dermatoses in healthcare workers evaluated for suspected allergic contact dermatitis. Contact Dermatitis 2008; 58:285-290
Out of Hand? The Challenge of Diagnosing Hand Dermatitis

Although the terms hand dermatitis and hand eczema are often used interchangeably, the disorder is multifactorial and more than one disorder, such as irritant contact dermatitis and atopic dermatitis, often underlie a patient’s condition. The lack of a clear relation between an etiological diagnosis and a patient’s clinical pattern of symptoms underscores the difficulty of correctly diagnosing hand dermatitis. That the clinical manifestations may change over time can further complicate diagnostic attempts. Yet an accurate diagnosis is crucial because not only does prognosis and treatment vary with the cause, there may be medicolegal implications in cases of occupational hand dermatitis. Epidemiological research, which can affect clinical trials on potential treatments, also depends on correct classification of the skin disorder.

The differential diagnosis of hand dermatitis is daunting because the symptoms can overlap with many other skin disorders. Conditions in the differential diagnosis include irritant and allergic contact dermatitis, fungal infections, keratoderma, lichen planus, granuloma annulare, and infections or infestations. For example, psoriasis is characterized by painful fissuring, well-defined lesions and can be symmetrical with involvement of the nails and knuckle, but it is seldom itchy. In contrast, tinea manuum can be itchy and asymmetrical, and it is usually dry and scaly and active on the back of the hands with nail involvement. Hyperkeratotic hand eczema is itchy, vesicular, and scaly and associated with painful fissuring and diffuse lesions usually in a symmetrical distribution.

There is no universally accepted classification for hand dermatitis, but a working group of the European Society of Contact Dermatitis recently published evidence- and consensus-based guidelines on the diagnosis, prevention, and treatment of hand eczema. All of their diagnostic recommendations were considered strong, that is, based on 75% to 95% consensus. First, they recommend a careful medical history, which should include inquiries about potential occupational and recreational exposure, personal and family history of allergies and skin conditions, duration and course of the hand dermatitis, underlying diseases, drug intake, and use of nicotine. It may be useful to quantify the amount of daily wet work in terms of duration of direct skin contact with water, how long water-proof (or other) gloves are worn, the frequency and intensity of hand cleaning, and what types, if any, occupational skin products are used. The patient’s clinical examination should include identifying the location and morphology of the lesions. The entire body, including the feet, which have been reported to be involved in 30% of the cases of hand dermatitis, should be inspected.

Importantly, all patients with hand dermatitis that persists for more than 3 months or that represents a relapse should undergo patch testing to identify potential contact allergens in the patient’s environment. Patch testing should be conducted with a baseline series, which can be supplemented with additional allergens based on the patient’s potential exposure. The relevance of positive patch test findings should always be evaluated with respect to potential occupational and recreational allergens. Certain classes of allergens, for example, are associated with a twofold risk of occupational allergic contact dermatitis: compounds used in rubber manufacturing (thiuram, mercaptobenzothiazole, and isopropyl phenyl paraphenylenediamine derivatives), epoxy resin, and biocides (formaldehyde, methylidibromo glutaronitrile, methylchloroisothiazolinone, methylisothiazolinone). Other common allergens associated with hand dermatitis include metals such as nickel and cobalt, fragrances, preservatives, and antibiotics. Testing with a patient’s own products may be advisable. Because hand dermatitis can overlap with psoriasis, which has been associated with delayed positive patch test reactions, patch test readings may need to be conducted at least 7 days after the patches are applied. A precise diagnosis can help patients to avoid developing chronic, unremitting hand dermatitis.

References

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Perhaps one of the most important points in the recent guidelines from the European Society of Contact Dermatitis was the strong recommendation that acute hand dermatitis be treated quickly and vigorously to decrease the chances of chronic dermatitis from developing coupled with identification and avoidance of causative exogenous factors. This group’s strong recommendation for a first-line treatment was topical corticosteroids. Because topical steroids can inhibit skin repair and cause it to atrophy, they also strongly recommended that corticosteroids should only be used longer than 6 weeks when necessary and under careful medical supervision. They found limited evidence for the efficacy of long-term intermittent use of topical steroids as maintenance therapy. Based on moderate quality evidence regarding the efficacy of calcineurin inhibitors, the group strongly recommended considering the off-label use of tacrolimus and pimecrolimus for the treatment of chronic hand dermatitis if treatment with topical steroids fails or cannot be tolerated. The group also strongly recommended that adult patients who fail to respond to topical corticosteroids undergo phototherapy of their hands with the caveat that its long-term use may increase the chances of developing a skin malignancy. Grenz ray treatment, however, was not recommended due to the known risk of developing skin cancer years after treatment. The use of systemic corticosteroids should be restricted to the treatment of acute cases or flares. The well-known serious side effects preclude the use of systemic corticosteroids for the treatment of chronic cases.

Aliretinoin (9-cis-retinoic acid), an agonist of both RAR and RXR retinoid receptors, was recommended as the second-line treatment for severe chronic hand dermatitis that fails to respond to topical steroids. The standard oral dose is 30 mg/day, and treatment may last 12 to 24 weeks depending on how the patient responds. Aliretinoin may be especially effective with predominantly hyperkeratotic forms of hand dermatitis. Although unavailable in the United States, aliretinoin is licensed in Canada and Europe. The drug is teratogenic; consequently, pregnancy prevention is mandatory for women of child-bearing potential beginning one month before use through one month after cessation of the drug. Because aliretinoin is associated with an increase in plasma cholesterol and triglycerides and a decrease in thyroid function, these parameters should be monitored.

Other systemic treatments are also available although their efficacy is not firmly established. Acitretin, which is approved by the U.S. Food and Drug Administration for the treatment of psoriasis, was used in a small, open-label study of patients with hyperkeratotic dermatitis of the palms. Treatment with acitretin was associated with a 51% reduction in the subjects’ symptoms compared to 9% in the placebo group. However, that subjects with psoriasis were included could have influenced outcomes. As with aliretinoin, measures to prevent pregnancy in women with child-bearing potential should be followed. Although not licensed for the treatment of hand dermatitis, cyclosporine has been used to treat severe, chronic, refractory cases. It appears to be equally efficacious as beta-methasone dipropionate, and its use has been associated with remission lasting as a long as a year. Its serious side effects (nephrotoxicity and an increased risk of cancer, high blood pressure, and infection) warrant close monitoring. Another drug that has been used to treat hand dermatitis off-label is azathioprine. Although evidence of its efficacy is lacking, it has been used successfully in the treatment of atopic dermatitis. Methotrexate has been reported to improve hand dermatitis while decreasing the need for systemic corticosteroids, but its use also requires careful consideration and monitoring because of its potentially serious side effects. Occasional off-label uses of interferon, intravenous immunoglobulins, and infliximab have been reported, but no randomized controlled trials supporting their efficacy are available.

As is often the case with all things related to dermatitis, prevention is the best medicine. Tactics include the use of intact and clean (on the inside) protective gloves when appropriate, especially during wet work, worn for as short a time as possible. Cotton liners can be worn underneath for extended use (> 10 minutes). Routine hand care should include washing hands in lukewarm water and drying them thoroughly after rinsing. Wearing finger rings at work should be avoided (albeit it may difficult to obtain patient compliance on this point). Moisturizers, a lighter one during the work day and lipid-rich ones at bedtime, should be applied all over the hands. Avoidance of irritants and contact allergens and identifying suitable substitutions are always mainstays of prevention, as is careful patient education.

Playing the Hand You’re Dealt: Approaches to Treatment of Hand Dermatitis

References

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