Wet work in relation to occupational dermatitis
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Wet work in relation to occupational dermatitis
Abstract

Topic and type of study: The prevalence of hand dermatitis and atopic dermatitis in nurses, auxiliary nurses and carers in healthcare institutions was surveyed by means of a questionnaire. The results were verified with a clinical examination. Aim of the study: The aim was to evaluate the questionnaire used and to describe the prevalence of hand dermatitis in healthcare activities. Results: The questionnaire showed that 25% of the surveyed population had experienced hand-dermatitis symptoms during the last 12 months, of which 14% had current symptoms of hand dermatitis. On the basis of the questionnaire, 15% of the surveyed population was strongly suspected to have atopic dermatitis and of this group 36% indicated hand-eczema symptoms. A clinical examination confirmed 58% of the questionnaire findings. The clinical examination in conjunction with the questionnaire established a lower limit for the prevalence of hand dermatitis of 63 out of 1,471 employees (4%). Conclusion: Hand dermatitis is a widespread problem in the healthcare sector. Employees with a predisposition for atopic dermatitis run a greater risk. Together with a specific occupational-health surgery, the questionnaire used can be a useful screening method for detecting hand dermatitis.

Introduction

Hand dermatitis is a common, work-related condition in employees in healthcare institutions. Sadly neither patients nor carers recognise hand dermatitis as a work-related complaint. The statutory reporting of hand dermatitis to the Dutch Centre for Occupational Illnesses is far from complete. At variance with common thinking, an allergy is the cause of work-related hand dermatitis in only a minority of cases. The main cause of hand dermatitis is long-term and frequent exposure of the skin to irritating substances. In healthcare professions this irritation is caused by washing your hands with water and soap and by wearing of gloves for long periods of time. From the first working day, employees in healthcare professions are made aware of the risk of infection and the importance of good hygiene, but this every day exposure is seldom considered a risk to the skin. Of employees with an atopic pre-

1 This article was written with support from Zorgonderzoek Nederland Medische Wetenschappen (ZON MW) (Healthcare Studies the Netherlands Medical Sciences)
disposition we know that their skin is even less resistant to these skin irritations than their non-atopic colleagues. The prevalence of the atopic dermatitis is rising in the general population, particularly among young adults. Traditionally, younger employees are strongly represented in the healthcare professions.

The patient hardly recognises, or does not recognise at all, the relationship between the risk of hand dermatitis and work. Furthermore, experience shows that hand dermatitis only leads to absenteeism at a very late stage, which means that the occupational physician also does not recognise the problem sufficiently. Patients with chronic recurring hand dermatitis often have their symptoms treated with steroids by their general practitioner and dermatologist for many years. Usually, the causal factors are not properly tackled. An efficient approach of hand dermatitis in ‘wet work’ professions requires both curative and preventative actions. For the social partners in the Dutch healthcare sector this was a reason to stipulate in the occupational-health agreements that measures must be taken to prevent hand dermatitis complaints.

In order to obtain insight into the number of employees with hand dermatitis and atopic dermatitis complaints in Dutch healthcare institutions, we surveyed a population of 1,471 healthcare workers in hospitals, care homes, and nursing homes. We also assessed whether a questionnaire is an effective method for Periodic Occupational Health Studies, PAGO in Dutch, of hand-dermatitis complaints.

**Method**

For this study we developed a questionnaire that could differentiate between:

- Presence or absence of atopic dermatitis;
- Presence or absence of hand dermatitis.

**Questionnaire**

The questionnaire (see page 37) contains some 6 questions to determine the presence of atopic dermatitis. The atopic syndrome has more manifestations than dermatitis, but only atopic dermatitis is related to an increased chance of hand dermatitis. The presence of just hayfever or asthma without atopic skin symptoms does not lower the threshold for skin irritations. A question regarding hayfever and asthma has been included in the short list of 6 questions, with the aim of being better able to interpret the relevant skin phenomena. The different answers have been weighted by a panel of dermatologists. An itchy skin condition before the second year of life is considered indicative for atopic dermatitis. At least 3 of the 6 questions must be answered affirmatively for the conclusion of ‘probable atopic dermatitis’. If an itchy skin condition is indicated for the second year, an additional positive question in the area of atopic dermatitis is sufficient for this conclusion. In order to determine the presence of hand dermatitis, the questionnaire...
### A Indications of atopic dermatitis

1. Have you ever suffered from an itchy skin condition? yes / no
2. Did you ever have dermatitis in skin folds, such as the back of your knees, elbows, ankles, neck, or back of the neck? yes / no
3. Do you have dermatitis now in skin folds or elsewhere on your body? yes / no
4. If you have or did have an itchy skin condition, did this start before you were 2 years old? yes / no
5. Have you ever suffered from asthma, hayfever or chronic bronchitis yes / no
6. Have you suffered from a dry skin during the last 12 months? yes / no

### B Indications for hand dermatitis

1. Do you suffer from one of the following complaints on hands or fingers now or did you during the past 12 months?

<table>
<thead>
<tr>
<th></th>
<th>Now</th>
<th>Last 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Red and swollen hands or fingers</td>
<td>yes / no</td>
</tr>
<tr>
<td>b</td>
<td>Red hands or fissured fingers</td>
<td>yes / no</td>
</tr>
<tr>
<td>c</td>
<td>Vesicles on the palm of your hand, the back of your hands or between the fingers</td>
<td>yes / no</td>
</tr>
<tr>
<td>d</td>
<td>Flaky hands or fissured fingers</td>
<td>yes / no</td>
</tr>
<tr>
<td>e</td>
<td>Itchy hands or fissured fingers</td>
<td>yes / no</td>
</tr>
</tbody>
</table>

2. Do these symptoms last for more than 3 weeks? yes / no
3. Did these symptoms occur more than once? yes / no

Table 1: Questionnaire

contains some 7 questions about dermatitis complaints, the duration of those complaints and the frequency of recurrence. Dermatitis is a pluriform skin complaint with a chronic recurring character. Due to the seasonal course of dermatitis, we asked about the current dermatitis complaints and the complaints during the last 12 months.

The answers to the questions on hand dermatitis were assessed and weighted by a panel of dermatologists. The presence of fissures and vesicles was deemed more indicative of dermatitis than swelling, squames and itching. Fissures
and/or vesicles both counted double in relation to swelling, squame and itching. At least 5 of the 7 items had to be scored positive for the conclusion of ‘high probability’.

Prior to the study all employees were invited to participate in an information session on hand dermatitis and the risks in healthcare work. The employees, whose questionnaire results indicated they probably suffered from manifest hand dermatitis, were invited to an occupational-health surgery by a nurse, experienced in occupational dermatology surgeries for patients with occupational-dermatology complaints. The occupational-health surgery served as the ‘gold standard’ in relation to the questionnaire method for diagnosing hand dermatitis.

Results
A total of 1,471 employees from 3 different healthcare institutions were approached with the request to complete the questionnaires. The institutions concerned nursing and care homes and a general hospital. Of the total 56% (822 questionnaires) were returned, of whom 57% worked in a nursing or care home and the remainder in a general hospital. Of the hospital respondents 77% worked in general-nursing departments, the remaining 23% in specialist departments such as dialysis and Intensive Care.

Atopy
On the basis of the questionnaires, 15% (126) of the respondents was classified as having a probable predisposition for atopic dermatitis. Of this group 36% (45) suffered from hand dermatitis complaints during the 12 months prior to the study. Of the group without suspected atopic dermatitis, 24% (164/696) suffered from dermatitis complaints during the 12 months prior to the study.

Hand-dermatitis complaints
On the basis of the questionnaire, 25% (209) of the total group of respondents was suspected to have experienced a period of hand dermatitis during the last 12 months. At the time of the study, 112 employees (14% of the respondents) manifested dermatitis on the basis of the questionnaire score. There were no significant differences in the prevalence of hand dermatitis between the different departments.

Indication for occupational-dermatology surgery
On the basis of the questionnaire 160 employees were suspected to have manifest dermatitis and these were invited to the surgery. Only 46% (73/160) of the invited employees attended the surgery. In 58% (42/73) of the employees who attended to surgery, manifest hand dermatitis could be confirmed and in 21 (30%) a period of hand dermatitis during the last 12 months.
Discussion

The survey detected 14% of employees with hand-dermatitis complaints and 15% of employees with atopic-dermatitis complaints. The questionnaire showed an indication for an occupational-health surgery in relation to suspected manifest dermatitis complaints for 11% of the employees. The response to these invitations to the surgery was low (46%). In 58% of the surgeries, the diagnosis of manifest dermatitis could be confirmed, but for another 30% there was a strong suspicion of a recent bout of dermatitis. Of the total group of 1,471 employees, 42 had manifest hand dermatitis complaints at the time of the occupational-health surgery. The lower limit for hand-dermatitis complaints could therefore be estimated at 42 out of 1471, representing 4%. This figure is in line with the reports for the healthcare sector in literature (3,8,9).

Both the response to the questionnaire and to the surgery was extremely low. In 88% of the surgery contacts, the suspicion of a manifest or recent bout of dermatitis could be confirmed. Hand dermatitis is a seasonal affliction, which means a substantial part of the complaints that are detected with a questionnaire can be missed due to the delay in the occupational-health surgery. During the implementation of this study we learned that the questionnaire survey and the occupational-health surgery must take place in quick succession.

Our observation confirms the additional risk of hand dermatitis in the event of a predisposition for atopic dermatitis (10). Of the group of employees without atopic dermatitis, 24% developed hand dermatitis complaints, whilst in the group with atopic dermatitis 36% had suffered from hand dermatitis during the last 12 months. Therefore in this population the chance of hand dermatitis is one-and-a-half times greater in employees with a predisposition for atopic dermatitis than for employees without atopic dermatitis.

In a study of 20,000 persons from the general population in Sweden, Meding found that 27% of people with a history of atopic dermatitis in their youth had suffered a bout of hand dermatitis during the last 12 months (5). The exposure to wet work together with the atopy could explain the 10% higher scores in the population studied by us. The results of the questionnaire into atopic dermatitis have not been tested with the occupational-health surgery. In a follow-up study it would be interesting to test the value of the questionnaire for screening atopic dermatitis.

All employees were offered the chance to participate in the information sessions that were linked to implementing this study. Despite the extensive attention to this information, only 46% of the employees with suspected manifest hand dermatitis responded to the invitation for an occupational-health surgery. It is known that dermatitis complaints are often ‘underreported’ in questionnaires (13,14).
Despite activities with frequent and long-term exposure to skin irritations, the occupational physician did not know anyone from this group of employees with dermatitis complaints. The combination of hand dermatitis and wet work begs the question whether this concerns an occupational illness, and this is a question that must be answered by the occupational physician. Apart from the occupational-illness assessment, the employee with hand dermatitis in a wet work profession must be helped to reduce exposure to wet work. Questions in the area of work and health are primarily the sphere of the occupational physician. As hand dermatitis hardly ever leads to absenteeism, these issues probably do not reach the occupational physician.

The results of this study have shown us that it is necessary to pay attention to information about the risks of hand dermatitis in the healthcare sector. This study confirms the suspicion that hand dermatitis occurs often in the healthcare sector. The large group of non-respondents in the questionnaire study and the low turnout to the occupational-health surgery confirm the idea that the employees do not consider hand dermatitis problems a priority. Prevention starts with being aware of the risk; simple measures can prevent this sometimes seriously debilitating work-related complaint. It is probable that the employees who should not have been in the occupational-health surgery group, the false positives, did not respond to the invitation. A revised scoring method with the indication set at a higher score, set the indication at 112 employees. Of the 73 employees who attended the surgery, 71 were part of this group with the higher score. All 42 employees whose diagnosis was confirmed during the surgery were also in the group with the higher score.

The questions about hand-dermatitis complaints (Table 1, part b) linked different symptoms to each other, and a question scored positive if either one was present. E.g. question 1a was positive if the hands are either red or swollen. This questioning possibly led to higher scores and more false positive results.

At the request of the occupational-health agreement partners in the healthcare sector, a Risk Inventory & Evaluation and a PAGO method were developed together with the Nederlands Kenniscentrum ArbeidsDermatosen (NECOD) and these were based on the questionnaire and occupational-health surgery method developed in this study. The manner of asking the questions and the scoring system were amended in line with the comments made in this discussion.
Hand dermatitis in the healthcare sector

Total group: 1,471 employees

822 respondents    649 non respondents

126 atopic dermatitis    696 no atopic dermatitis

45 hand dermatitis in last year    81 no hand dermatitis in last year

164 hand dermatitis in last year    532 no hand dermatitis in last year

Fig I: Flow diagram atopic-dermatitis complaints

Total group: 1,471 employees

822 respondents    649 non respondents

209 hand dermatitis last year    613 no hand dermatitis last year

97 no manifest hand dermatitis    112 manifest hand dermatitis

Fig II: Flow diagram hand dermatitis-complaints last 12 months and manifest hand dermatitis.
Reference List


