Epidemiological Study of Occupational Dermatitis in Elbasan District

Healthcare

Kewords: contact dermatitis, occupational, epidemiology.

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Abstract

Background: The contact dermatitis is an inflammatory reaction due to skin contact with chemical substances. These reactions can be allergic and irritant. The aim of the study was to describe patterns in the diagnosis of occupational skin diseases, the frequency of etiologic factors examines the demographic and employment characteristics of workers with occupational skin disease.

Patients and Method: A prospective study, on the patients that referred to the Dermatology Clinic in Elbasan district, between 01.01.2010 and 31.12. 2012, based on demographic items, the type of contact dermatitis, location and etiologic factors.

Results: Eligible for inclusion in the study were 932 patients. The mean age of patients was 40.2 ±13.2 years old (range 20 – 64), with 696 (75%) of them living in urban area and 236 (25%) living in rural area, $p<0.05$. More affected by contact dermatitis were females with 562 (60%) cases compared to men with 370 (40%) of total cases without a significant difference, $p=0.5$. The ratio women/men was 1.5:1.The most common occupational disease was irritant contact dermatitis in 435 (46.7%) patients, allergic in 423 (45.4%), photoallergic in 40 (4.3%) and contact urticaria in 34 (3.6%) patients. Building materials (27%), plants (26%), and cosmetic (12%) were the most frequent etiological factors. The area most affected were the hands (52%), legs (16%) and the face (13%).

Conclusions: Contact dermatitis is a frequent occupational dermatosis in our patient population. Irritant contact dermatitis is more common than allergic contact dermatitis.

Introduction

Occupational dermatosis is defined as any pathological condition of the skin for which job exposure can be shown to be a major direct or contributory factor. The commonest occupational dermatosis is a work-related contact dermatitis (1)

Occupational skin diseases affect workers of all ages in a wide variety of work settings such as; hairdressing, medical, dental, veterinary, agriculture, cleaning, printing, painting, construction, food preparation and catering, etc.The contact dermatitis is an inflammatory reaction due to skin contact with chemical substances. These reactions can be allergic and irritant. Many of the eczema cases with unknown etiology are, in fact, clinical forms of contact dermatitis.

Exposure in the workplace is responsible for a wide range of cutaneous problems, as summarized in Table 1. Contact dermatitis, however, accounts for 90% of all cases of occupational dermatoses (1,2). Irritant contact dermatitis is the most common type of occupational skin disorder, traditionally held accountable for approximately 80% of all cases. Occupational contact dermatitis is most often localized to the hands. Employees in wet work are at increased risk of this disease.

Increasing industrialization, the use of new materials and the production of new substances require the constant education of dermatologists who are the best qualified clinicians to diagnose and treat this kind of illness (3).

At their workplace, farmers are exposed to a wide variety of substances, such as plant and animal allergens, microorganisms, and pesticides, which may provoke occupational skin disease (4). The regional factors also play an important role in the onset and clinical aspect of the lesions in contact dermatitis: the integrity of the skin, oclusal factors, anatomical region (5,6).

The aim of the study was to describe patterns and the diagnosis of occupational skin diseases, the frequency of etiologic factors examines the demographic and employment characteristics of workers with occupational skin disease.

Material and Methods

This is a prospective study including 932 ambulatory patients with work-related dermatoses presented to the Dermatology Clinic of primary health care service in the district of Elbasan from January 2010 to December 2012. Data on sociodemographic characteristics, variables related to lifestyle and to the temporal factor, the type of contact dermatitis, location and etiological factors were gathered through a structured questionnaire.

Results

More affected by contact dermatitis were females with 562 (60%) cases compared to men with 370 (40%) of total cases without a significant difference, p=0.5. The ratio women: men was 1.5: 1. The mean age of patients was 40.2 ±13.2 years old (range 20 – 64), with 696 (75%) of them living in urban area and 236 (25%) living in rural area, $p<0.05$. The ratio urban : rural was 2.9: 1.
Regarding the dermatological diagnosis the most common occupational disease was irritant contact dermatitis in 435 (46.7%) patients, allergic in 423 (45.4%), photoallergic in 40 (4.3%) and contact urticaria in 34 (3.6%) patients (χ^2 =659.8, $p<0.001$). The distribution of cases depending on the type of contact dermatitis indicates an approximate percentage of those allergic to those irritant (fig. 1)

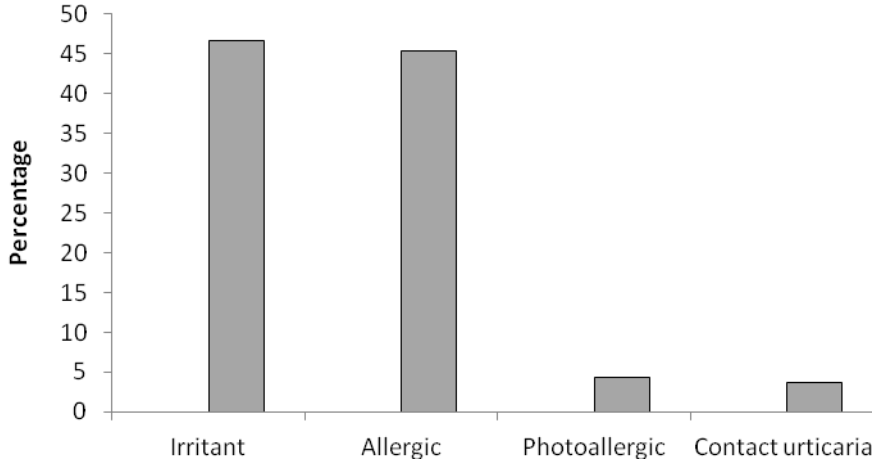

Figure 1. The type of contact dermatitis

The most affected age groups by the contact dermatitis, are 20-29 years old (30%) followed by agegroup 50-59 years old (28%) (fig. 2).

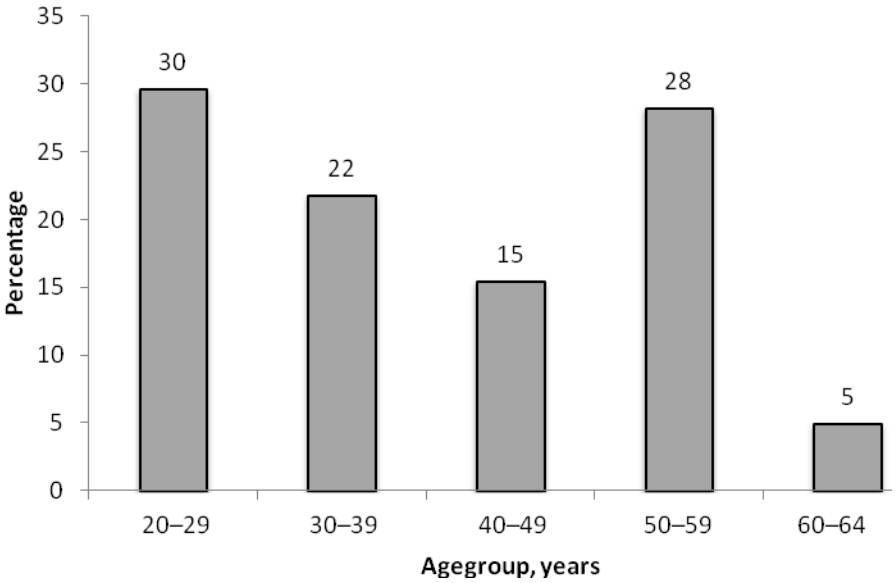

Figure 1. Distribution of contact dermatitis by agegroup

Depending on the time of the year, most of cases were reported during the spring (30%) - summer (32%) period, in which the risk of contact with the various allergens is significantly increased.
For the majority of cases the onset of contact dermatitis was caused by a single etiological factor (218 cases), but there have been 58 cases in which the disease was triggered by 2 factors and 26 cases with 3 or more etiological factors. Building materials (27%), plants (26%), and cosmetic (12%) were the most frequent factors (table 2).

Table 2. The frequency occurrence of etiological factors in the onset of contact dermatitis

Etiological factors	N	%
Building materials	252	27
Plants	242	26
Cosmetic	112	12
Detergents/soaps	103	11
Metals	84	9
Ultraviolet radiation	56	6
Antiseptics and topical drugs	19	2
Textile	19	2
Others	47	5

From the perspective of the clinical and biological evolution the vast cases of contact dermatitis were acute 496 (53%) and subacute 317 (34%) forms.

The most frequent affected areas were the hands (52%), legs (16%) and the face (13%).
Some of the patients diagnosed with contact dermatitis have associated other diseases, considered important in the evolution and in the treatment of the cases. Cardiovascular (30%) and digestive diseases (14%) were more frequent diseases.

Discussions

The results of this study show that contact dermatitis is a very frequent occupational skin disease, Concerning the studied cases of contact dermatitis by gender, it was found more frequently at females compared with males (5,6,7). The clinical practice shows that females are most affected.
The distribution of cases of contact dermatitis by age groups indicates that the most affected by the condition were the age groups 20-29 years old (30%) followed by agegroup 50-59 years old. In several countries the prevalence increases with age especially among males, and tends to decrease after the age of 50 years (8). As in this study, at women the increased prevalence rate is generally around the age of 40 years, many of those practicing domestic activities. Studies suggest that the age and sex – by themselves – are not risk factors for contact dermatitis, but may become in association with exposure to different professional and household activities (9). The irritant type of eczema is more frequent than the allergic type. This agrees with other reports (10,11,12). The allergic and irritant lesions are mainly located on the hands (52%). The location on hand appears most frequently in professional contact dermatitis at both women and men, in a proportion of 70% to 85%. Another location to point out is the face, diffusely in construction workers and particularly on the eyelids in textile workers. Facial allergic contact dermatitis is associated above all with cosmetics use in women, although it is also a reason for occupational consultation in cases of airborne allergic contact dermatitis (13). Allergic contact dermatitis is more frequent in a workplace with both irritant and allergic factors. This situation is mostly present for hairdressers.
The frequency occurrence of contact dermatitis is higher in summer (32%), which proves the impact of climatic conditions such as ultra violet radiation and heat on the onset and exacerbation of this condition. From the etiological point, the study shows a variety of factors involved in triggering and exacerbating the disease. From the etiological factors, building materials (27%), plants (26%), and cosmetics (12%) were the most frequent causative factors (table 2). For construction workers and mechanics the irritant factors are mainly chemical substances together with atmospheric factors such as open air, cold temperature, wind.

Studies have reported that 5-10% of cases of contact dermatitis are determined by plants. The repeated exposure causes often acute contact dermatitis, with frequent relapses. (14,15). In this study the majority of cases of contact dermatitis due to plants were observed among farmers. The drugs applied on the skin which caused contact dermatitis were nonsteroid anti-inflammatory agents and antibiotics.

Conclusions

Contact dermatitis is still a frequent occupational dermatoses in our patient population. Irritant contact dermatitis is more common than allergic contact dermatitis. Occupational dermatitis can cause significant morbidity and most cases are encountered in the younger age group. The general and individual measures of prevention and protection are needed for the management of the disease.

References

1. T. Rustemeyer. P.Elsner, S.M.John & Maibach. Karneva's Occupational Dermatology, DOI 10.1007/978-3_8 Springer-Verlag Berlin Heidelberg 2012
2. Lushniak BD. The epidemiology of occupational contact dermatitis. *Dermatol Clin* 1995; 12: 671-80.
3. Angelini G, Vena GA. Il dermatologo è il clinico meglio qualificato per l'esecuzione dei patch test. *G Ital Dermatol Venereol* 1995; 130: 85-9.
4. Susitaival P. 2000. Occupational skin diseases in farmers and farm workers. In: Kanerva L, Elsner P, Wahlberg JE, Maibach HI, editors. Handbook of Occupational Dermatology. Berlin: Springer Verlag. p 924–931.
5. Burns T, Breathnach S, Cox N, et al. – Rook's Textbook of Dermatology. 7th ed. 2004.
6. Dubertret L, Aractingi S, Bachelez H, et al. – Thérapeutique dermatologique, Flammarion Médecine-Science, 2001.
7. Johanssen JD, Frosch PJ, Lepoittevin J-P – Contact Dermatitis, 5th Edition, Springer-Verlag, Berlin Heidelberg, 2011.
8. Schäfer T, Bohler E, Ruhdorfer S, et al.– Epidemiology of contact allergy in adults. *Allergy* 2001: 56:192-196.
9. Wilkinson, S. and Beck, M. (2004): Contact dermatitis in: Rook's Textbook of Dermatology, edited by Burns, T.; Breathnach, S.; Cox, N.; Griffiths, C. eds., 7th ed., Blackwell Publishing Company, Chapter 19, PP. 1-30.
10. Thyssen JP, Linneberg A, Menné T, Johansen JD. The epidemiology of contact allergy in the general population–prevalence and main findings. Contact Dermatitis. 2007;57:287-99.
11. Uter W, Rämsch C, Aberer W, Ayala F, Balato A, Beliauskiene A, et al. The European baseline series in 10 European countries, 2005/2006–results of the European surveillance system on contact allergies (ESSCA). Contact Dermatitis. 2009;61:31-8.
12. Williams HC, Grindlay DJ. What's new in atopic eczema? An analysis of systematic reviews published in 2007 and 2008. Part 1. Definitions, causes and consequences of eczema. Clin Exp Dermatol. 2010;35:12-5
13. García-Gavín J, Vansina S, Kerre S, Naert A, Goossens A. Methylisothiazolinone, an emerging allergen in cosmetics? Contact Dermatitis. 2010;63:96-101
14. An extensive handbook of occupational dermatology is also available. In: Kanerva L, Elsner P, Wahlberg JE, Maibach HI, eds. *Handbook of Occupational Dermatology*. Berlin, Heidelberg, New York: Springer Verlag, 2000: 1-1300
15. Diepgen TL. Occupational skin disease data in Europe. *Int Arch Occup Environ Health* 2003; 76: 331-8.