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Impact of allergic contact dermatitis on the quality of life and work productivity

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Abstract

Background: Contact dermatitis is a skin reaction to physical, chemical and biological substances that are very prevalent in the environment in particular at work.

Objective: To evaluate ACD patients' quality of life and to study their work productivity effects of this disorder.

Methods: The patient's comprehensive history including age, sex, occupation type, duration of current employment, duration of existing dermatitis and distribution of skin injuries. History was asked concerning the use of protective apparel, hobbies, correlation with the use of various products such as medications, topical soap, jewellery and history of pre-treatment. Dermatological or systemic illness related if any. For the quality assessment of ACD patients, we have used the Dermatology Life Quality Index (DLQI). It is a 10-point instrument that measures the effect of skin disease on a person's quality of life.

Results: Male dominance was seen with 66% and females were 34%. The maximum patients belonged to the age group of 30 to 40 yrs with 32%. In work related consequences due to contact dermatitis, 17% of the cases were transferred, 9% of the cases had decline in income, In 7% of the cases, work loss was seen. In 2% Change of company was done in only 2%. Hand Eczema was seen in 60% of the cases. Dermatology Life Quality Index (DLQI) score band. In Majority of the patients in 51% it had very large effect on patient's life. Extremely large effect on patient's life was seen in 22% of the patients. The mean DLQI score was 20.20 and standard deviation was 5.40 and P-value was 0.005 which was significant.

Conclusion: The issue of allergic contact dermatitis is also a contentious issue since the social, socio-professional and familial consequences of this disease are prevalent with a severe impairment. It impacts the quality of life and work of patients, something all occupational practitioners and dermatologists should consider.

Keywords: DLQI, ACD, dermatitis, eczematous lesions

Introduction

Contact dermatitis is a skin reaction to physical, chemical and biological substances that are very prevalent in the environment in particular at work^[1]. About 90% of the workplace skin diseases are linked to contact dermatitis^[2]. A very common type of skin disease is Allergic Contact Dermatitis seen in dermatology clinics among patients. ACD happens when the skin comes into contact with a sensitive or allergic reaction to the skin. Allergic dermatitis in contact occurs in adults more often.

In other words, the body triggers allergic contact dermatitis Response to something touching the skin directly. A lot of different things substances that are known as 'allergens' can cause allergic contact dermatitis. Such as fragrances etc., and so forth. Normally, most people do not experience certain substances, and the first time the person is exposed, it is not noticeable^[3].

However once the skin is sensitive or allergic, contact will result in rash. Contact dermatitis is allergic, caused by multiple skin inflammations that result in erythema, edoema and vesiculation^[4]. This is an allergy arising from cutaneous interaction with a specific allergen to which the patient has acquired a particular sensitivity. It is a delayed exposure type. Patch testing is used to detect allergic contact dermatitis^[5].

The consequences of ACD are frequently underestimated since they are not life threatening. It was often treated as a meaningless work-related case.

Many disorders such as discomfort, scratching and psychosocial effects have nevertheless been identified. All these considerations will adversely influence the quality of life (QOL) of the individuals concerned [6].

Materials and Methods

Study: Prospective observational study

Sample: 100 cases of Allergic contact dermatitis who attended the dermatology OPD, who were patch test positive were included in the study

A medical questionnaire and a dermatologic clinical test were used to collect data. The questionnaire analysed the sociodemographic details, occupational details and medical information such as eczema family history, personal medical history, atopy patient history (personal history of suspected allergic asthma or rhinitis or atopic eczema), eczema growth time, number of recurrences annually and treatment symptoms).

Inclusion Criteria

- Eczematic Contact Dermatitis in the presence / alleged contact
- >18 yrs of age.
- Patients willing for follow up

Exclusion Criteria

- Pregnant women
- <18 yrs and >70 yrs
- HIV/ Immunocompromised adults

The patient's comprehensive history including age, sex, occupation type, duration of current employment, duration of existing dermatitis and distribution of skin injuries. History was asked concerning the use of protective apparel, hobbies, correlation with the use of various products such as medications, topical soap, jewellery and history of pre-treatment. Dermatological or systemic illness related if any. For the quality assessment of ACD patients, we have used the Dermatology Life Quality Index (DLQI). It is a 10-point instrument that measures the effect of skin disease on a person's quality of life.

The scores vary from 0 and 30 and the highest score is the highest eczema. The following are categorized into: 0-1 = patient's life is not affected; 2-5 = patient life is affected low; 6-10 = patient life is affected moderately; 11-20 = patient life is affected considerably and 21-30 = extremely important effect on the patient's life.

We used the Work Productivity and Activity Impairment: Allergy Related (WPAI:AS) Questionnaire to determine the productivity at work. In multiple pathologies, including chronic hand dermatitis, the WPAI questionnaire has been validated.

Observation and Results

Table 1: Distribution based on Gender and Age group

Gender	Total	Percentage
Male	66	66%
Female	34	34%
Age Group		
21 - 30	31	31%
31 - 40	32	32%
41 - 50	21	21%
60 - 70	16	16%

Male dominance was seen with 66% and females were 34%. The maximum patients belonged to the age group of 30 to 40 yrs with 32%. In 31% of the patients belonged to the group of 31%. 21% belonged to the age group of 41 to 50 yrs and the least 16% belonged to the age group of 60 to 70 yrs.

Table 2: Occupational distribution of the study

Occupation	Total	Percent
Construction	27	27%
Painter	16	16%
farmer	10	10%
housewife	9	9%
flower vendor	6	6%
textile	5	5%
health care	5	5%
steel polish	4	4%
mechanic	4	4%
plastic industry	3	3%
carpenter	3	3%
leather industry	2	2%
rubber	2	2%
tailor	1	1%
hair dresser	1	1%
electrician	1	1%
conductor	1	1%
Occupational consequences		
No change	65	65%
Transfer	17	17%
Decline of incomes	9	9%
Work loss	7	7%
Change of company	2	2%

Majority of the patients were construction workers around 27%. Painter were 16%, Farmers were 10%, housewife were 9%. In Occupational consequences due to contact dermatitis's, 17% of the cases were transferred, 9% of the cases had decline in income, In 7% of the cases, work loss was seen. In 2% Change of company was done in only 2%.

Table 3: Distribution of clinical pattern

Clinical Pattern	Number	Percent
Hand Eczema	60	60%
Hand and foot eczema	15	15%
Eczema with sensitization	9	9%
Erythroderma	4	4%
Face and Neck	4	4%
ABCD	3	3%
Flexural Eczema	3	3%
Foot Eczema	2	2%

Hand Eczema was seen in 60% of the cases, Both Hand and foot eczema was seen in 15% of the cases. Eczema with sensation was seen in 9% of the cases, Erythroderma and Face and neck was seen in 4% of the cases each.

Table 4: DLQI score bands

DLQI Score Band	Total	Percentage
0 – 1 no effect at all on patient's life	1	1%
2 – 5 small effect on patient's life	10	10%
6 – 10 moderate effect on patient's life	17	17%
11 – 20 very large effect on patient's life	51	51%
21 – 30 extremely large effect on patient's life	22	22%
Total	100	100%

Dermatology Life Quality Index (DLQI) score band. In Majority of the patients in 51% it had very large effect on patient's life. Extremely large effect on patient's life was seen in 22% of the patients. In 17% of the patient's moderate effect on patient's life was seen. In 10% of the patient's Small effect on patient's life was observed. In 1% of the cases no effect at all was seen.

Table 4: Mean DLQI score

Parameter	Mean + SD	P-Value
DLQI Score	20.20 ± 5.40	0.005

The mean DLQI score was 20.20 and standard deviation was 5.40 and P-value was 0.005 which was significant.

Table 5: Association between absenteeism and variables, poor QOL and variables studied after multiple linear regression.

Variables	Initial Model				Final Model			
	B	p	95% confidence interval		B	p	95% confidence interval	
			Inferior limit	Superior limit			Inferior limit	Superior limit
Age range	0.05	0.43	-0.22	0.51				
School level	<10 ⁻³	0.99	-0.42	0.42				
Family history of eczema	-0.001	0.45	-6.12	1.52				
Lifestyle	0.04	0.52	-0.65	1.28				
Atopy	0.10	0.12	-0.23	1.83	0.13	0.03	0.09	2.008
Localization	-0.01	0.78	-0.50	0.38				
Clinical forms	-0.05	0.44	-0.27	0.12				
Number of relapses >10	0.10	0.13	-0.08	0.50	0.14	0.02	0.04	0.56
Work loss	0.08	0.24	-0.75	2.91				
DLQI	-0.03	0.14	-0.7	0.10				
Consequences	0.03	0.062	-0.04	1.6				
Treatment	-0.02	0.12	-6.12	0.75				
Presenteeism	0.37	<10 ⁻³	-0.27	0.12	0.36	<10 ⁻³	0.01	0.04
Absenteeism	-0.25	0.39	-0.09	0.03				
Daily activity impairment	0.12	0.16	-0.44	2.60	0.18	0.03	0.15	3.04
Overall work productivity loss	0.44	0.12	-0.01	0.09	0.18	0.01	0.004	0.03

P: degree of significance; B: regression coefficient

Discussion

ACD is a common condition, owing to its associated personal and occupational impairments, which has substantial societal costs. The aim of this research has been to determine the effect on QOL and occupational activities of patients of this dermatitis.

The prevalence of contact dermatitis is on the increase as a result of rapid urbanisation and industrialisation. The patient is exposed to and sensitised to the air in numbers of allergens. This induces irritant or allergic dermatitis in touch. It is likely that the irritants can create a skin barrier defect and eventually contribute on to the development of allergic contact dermatitis. As there are several new allergens, it is vital that the allergens to which the patient is sensitised be established so that recommendations can be given immediately to avoid further exposure. 80% of allergens contributing to contact dermatitis may be detected by the use of Regular Allergens [7].

In a research using the amended Skindex-16 questionnaire, the findings of our analysis confirmed how ACD has a negative effect on QOL of patients, as stated by Kadyk DL *et al.* [8].

Our findings have been hard to compare with existing literatures. Firstly, most contact dermatitis studies also involves ICD patients. Second, limited data was collected from various dermatological unique QOL instruments with respect to the outcomes of ACD. Each survey uses multiple questions and the QOL calculation scoring. In some trials of OCD patients, the averages of DLQI scores were also identical in some instances [9, 10, 11, 12, 13].

The relationship between contact dermatitis and work entails the influence of clinical experience on the condition and on the professional activity, on the other hand. Those who quit work due to skin disease had impaired QOL considerably more.

Our outcomes are better than those of other studies in terms of presentness, absenteeism and activity impairment. This can be demonstrated by the predominance of manual labour in our sample; it can forecast sick leave. In addition, because of the variation in social security programmes the relationship between absenteeism, presentism and illness varies between nations [14, 15].

Conclusion

The issue of allergic contact dermatitis is also a contentious issue since the social, socio-professional and familial consequences of this disease are prevalent with a severe impairment. It impacts the quality of life and work of patients, something all occupational practitioners and dermatologists should consider. A multidisciplinary approach incorporating personalised training with long-term follow-up is thus important to increase the quality of life of ACD patients.

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