INDUSTRIAI CONTACT DERMATITIS AMONG TEXTILE WORKERS IN TWO FACTOREIS

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الخلاصة :

اعتمد في تشخيص التهاب الجلد التماسي على البطاقات الطبية الشخصية للعمال . اظهرت النتائج فرق احصائي في حدوث المرض بين العاملين في المصنعين، وكذلك بين الاقسام المختلفة لمعمل ١٧ تموز فقط وليس في معمل ٣٠ تموز. وتبين ايضا ان هناك فرق احصائي بين الجنسين في حدوث المرض في معمل ١٧ تموز وليس في معمل ٣٠ تموز.

ABSTRACT

Diagnosis of contact dermatitis was based on medical cards of the employees. The results showed the existence of significant differences ($P < 0.01$) in occurence of the disease among employees of the two factories, these differences persisted between the different departments of 17th July factory but not 30th July factory. Also there were significant differences ($P < 0.01$) between sexes in the occurance of contact dermatitis for 17th July factory but not ($P > 0.1$) for 30th July factory.

INTRODUCTION

Although no definite statistics are available for the incidence of occupational dermatitis, it has been determined by many experts that the problem is ever present and increasing in parallel with industrial growth[1]. Contact dermatitis (C.D.) in industry is the major cause of disability and absence from work when com-

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pared with other occupational diseases[2]. In Great Britain[3] more days are lost due to occupational dermatitis than from all the other occupational diseases altogether. In men approximately 650000 working days a year are lost, and for women approximately 200000 working days a year are lost[3] . Newhouse[4] pointed out that over the past 15 years the amount of absence from jobs resulting from the different occupational diseases declined steadily except for industrial dermatitis. Similar finding is reported by Gellin[5] and Trasho[6] in their study concerning many states of U.S.A. Also in America one of the report shows that occupational dermatitis comprise 70% of all the occupational diseases in all the states exept one which shows 40%[7]. Eczematous dermatitis comprises about 30% of all skin diseases. It incorporates exogenous or contact dermatitis including industrial dermatitis, and endogenous or constitutional dermatitis of various pattern[8].

Occupational diseases of the skin are common for at least two reasons, first, the skin has a large surface area available for contact exposure; and, second, the work environment contains innumerable natural and artificial materials capable of exerting chemical, mechanical, physical, biological or photoreactive insults to the skin[9]. The prevention of occupational dermatitis demands an accurate knowledge of the worker and his work.

The present work aims to investigate the followings:

a- To find the extent of contact dermatitis in Iraqi textile factories.

b- To compare the results between the two factories.

c- To find out if there are significant differences in the pattern of disease occuring amongst different groups of workers within the industry.

MATERIAL AND METHOD

There are four factories that form the state company for wooden textile in Baghdad. Two factories have been chosen, the oldest one (17th July factory which was established in 1926) and the newest one (30th July factory which was

established in 1977). Short description of the two factories will be given as a background to the reader[2].

17th July Factory (17 JF): The whole building is old except the finishing department. Generally the old section is lacking the central airconditioning and downward exhaust system, so it seems to be hot and dusty especially in summer. The whole production processes are done with manual machines which have to be run by workers themselves. The raw materials used are iraqi wool, imported wool, artificial silk, rayon, spinned wool, spinned cotton or mixed one, in addition to different chemicals and dyes.

30th July Factory (30 JF): The building is new, well ventilated and air conditioned, the whole production processes are fully automatic. The raw materials used are acrylic yarn, spinned acrylic fibre and different chemicals and dyes.

There is one medical department for both factories, it is situated in 17 JF. The department runs by two part - time physicians; each visits the factory for one hour in each working shift, both factories work two shift per day. The mean number of employees examined by each physician per day is about 25 patients. The employees of both factories are provided with different personal protective equipment, but most of them do not wear it.

Diagnosis of the cases was done by the factory physician or in doubtful cases they were referred to dermatologist. On that basis the number of attending employees to the medical department for C.D. during the period of study was recorded. It was decided to study all the employees who were in continuous employment throughout the period started from 1/3/1978 to 28/2/979. This is made to exclude 220 employees from the study at 17 JF and 69 employees at 30 JF. There were no records available on employees concerning age, type of job, pre - employment medical examination (previous skin disease.).

RESULTS AND DISCUSSION

The analysis of data showed that out of 1151 employees in 17 JF, 169 employees had C.D. (14.7%) while in 30 JF, there were 41 (0.9%) employees suffering from C.D. out of 477 employees. The differences between the two factories (Table 1) was significant ($P < 0.01$), this could be referred to the oldness of the 17 JF and the product processes were mostly mannual whereas 30 JF was a new factory and most of the product processes were automatic. The chi-squar test between different departments, sex, for the occurence of C.D. among employees of 17 JF showed the existance of a significant difference between different departments, between male and female, between male in different de-

Table 1. Chi-square test between the two factories (17th July & 30th July) for the occurrence of C.D. among all employees.

Factory	C. D.*	non C. D.	All employees
17th July	196	982	1151
30th July	41	436	477
Total	210	1418	1628

* C.D. : Contact Dermatitis

$X^2 = 11.123$

d.f. = 1

$P < 0.01$

partments, ($P < 0.01$) but not for female (Table 2) between different departments ($P > 0.05$). It was shown that the extend of C.D. was more in male employees in 17 JF, on the other hand no significant difference ($P > 0.05$) for female having C.D. in different departments whether worked in 17 JF or 30 JF

Table 2: Chi-square tests between different departments and sex for the occurrence of Contact Dermatitis (C.D.) among employees of 17th July Factory during the period of study.

Department	C . D		non C.D.		Total		All employees
	M	F	M	F	M	F	
Wool Preparation	17	6	37	57	54	63	117
Woollen Spinning	15	-	77	9	92	9	101
Worsted Spinning	23	3	129	30	152	33	185
Weaving	43	-	155	12	198	12	210
Finishing	17	12	88	92	103	104	207
Store	12	-	42	3	54	3	57
Engineering	9	-	98	—	107	-	107
Industrial Communication	11	1	132	23	143	24	167
T o t a l	147	22	756	226	903	248	1151

M = male , F = female

Test of significant

Between male & female

$X^2 = 8.5$ d.f. = 1 $P < 0.01$

For male, between different departments

$X^2 = 2.7.6$ d.f. = 7 $P < 0.01$

For female, between different departments

$X^2 = 3.9$ d.f. = 3 $P > 0.05$

Between different departments

$X^2 = 20.8$ d.f. = 7 $P < 0.01$

(Table 3), this could be explained that the female employees were more careful about them selves from the point of hygiene than male employees although both of them did not wear personal protective equipment. At 17 JF the highest percentage (21.1%) of employees having C.D. was working in store department followed by weaving department (20.5%), then wool preparation department (19.6%). It was of interest to show that in woolen spinning department, worsted spinning department and finishing department, the rate of occurrence were more or less the same (around 14%). The rate of employees at 17 JF who attended the medical department (Table 4) for one time suffering from C.D. was 8.7% (100 employees), while the rate for those who attended more than one time was 6.1% (69 employees). This could indicate that there was a real problem of C.D. in 17 JF which could be related to direct contact of worker to the production process as the work still manual and also to the ignorance of the workers

Table 3: Chi-square tests between different departments and sex for the occurrence of Contact Dermatitis (C.D.) among employees of 30th July Factory during the period of study.

Department	C.D. M	C.D. F	non C.D. M	non C.D. F	Total M	Total F	All employees
Taft	3	2	29	8	32	10	42
Spinning	11	5	99	45	110	50	160
Finishing	3	6	94	62	97	68	165
Store	-	-	14	-	14	-	14
Engineering	4	-	26	-	30	-	30
Industrial communication	6	1	41	1	47	2	49
Control & quality	-	-	17	-	17	-	17
Total	27	14	320	116	347	130	477

M = male , F = female

Test of significant

Between male and female $X^2 = 1.1$ d.f. = 1 $P > 0.05$

For male, between different departments $X^2 = 9.4$ d.f. = 4 $P > 0.05$

For female between different departments $X^2 = 4.4$ d.f. = 3 $P > 0.05$

Between different departments $X^2 = 8.8$ d.f. = 6 $P > 0.05$

to the occupational hazards and the method of prevention in addition of the lack of washing facilities in each department.

On th other hand, the chi - square test between different departments, sex, for the occurrence of C.D. among employees of 30 JF (Table 3) shows no significant different ($P > 0.05$) between different departments, between male and female, between male in different departments and female in different departments. The rate of employees at 30 JF who attended the medical department.

Table 4: Frequency distribution of all employees at 17th July Factory who attended 0, 1, 2, ..etc. times the medical department suffering from Contact Dermatitis during the year of study.

No. of Attend.	Sex	I	II	III	IV	V	VI	VII	VIII	Total
0	M	37	77	120	155	86	42	98	132	756
	F	57	99	30	12	92	3	—	23	226
	T	94	86	159	167	178	45	98	155	982
1	M	88	7	16	27	0	10	5	6	88
	F	4	-	2	-	6	-	-	-	12
	T	12	7	18	27	15	10	5	6	100
2	M	4	5	4	10	3	-	1	2	29
	F	1	-	1	-	1	-	-	1	4
	T	5	5	5	10	4	-	1	3	33
3	M	1	2	3	5	4	1	2	-	18
	F	1	-	-	-	-	-	-	-	1
	T	2	2	3	5	4	1	2	-	19
4	M	-	-	-	-	-	1	-	2	7
	F	-	-	-	-	3	-	-	-	3
	T	2	1	-	1	3	1	-	2	10
5	M	2	-	-	-	1	-	1	1	5
	F.	-	-	-	-	2	-	-	-	2
	T	2	-	-	-	3	-	1	1	7
Total	M	54	92	152	198	103	54	107	143	903
	F	63	9	33	12	104	3	-	24	248
	T	117	101	185	210	207	57	107	167	1151

M = male, f = female, T = total (Attend. = attendance)
I=wool preparation, II=woolen spinning, III=worsted spinning, IV=weaving V=finishing, store=VI, VII=engineering, VIII=industrial communication.

for one time suffering from C.D. was 7.3% (35 employees) while the rate (Table 5) for those who attended more than once was 1.2% (6 employees), however, the rate of occurence of C.D. was different in different departments, this could be explaned by chance of occurence rather than to the real cause related to contacts with materials which leads to C.D. This could indicate that there is no problem of C.D. in 30 JF, which could be related to automation of the production process.

Table 5: Frequency distribution of all employees of 30th July Factory who attended 0, 1, 2, ..etc. times the medical department suffering from Contact Dermatitis during the period of study.

No. of empl. Attendance	Sex	I	II	III	IV	V	VI	VII	Total
0	M	29	99	94	14	26	41	17	320
	F	8	45	62	—	—	1	—	116
	T	37	144	156	14	26	42	17	436
1	M	3	10	3	—	2	4	—	22
	F	2	5	5	—	2	1	—	13
	T	5	15	8	—	2	5	—	35
2	M	—	1	—	—	1	—	—	2
	F	—	—	1	—	—	—	—	1
	T	—	1	1	—	1	—	—	3
3	M	—	—	—	—	1	2	—	3
	F	—	—	—	—	—	—	—	—
	T	—	—	—	—	1	2	—	3
Total	M	32	110	97	14	30	47	17	347
	F	10	50	60	—	—	2	—	130
	T	42	160	165	14	30	49	17	477

M = male , F = female , T = total.

I=Taft, II=Spinning, III=Finishing, IV=Store, V=Engineering, VI=Industrial Communication, VII=Quantity & Quality.

RECOMMENDATIONS

From the results obtained we suggest to the headquarter of the factories the following recommendations:

1. Education of the employees on occupational hazards and its method of prevention, in particular the importance of personal protective equipments for employees work at 17 JF.
2. Provide washing facilities in particular for 17 JF.
3. Periodic medical examination should be performed, beside pre - employment medical examination to avoid workers with wet hand and sensitivity to work in certain departments.
4. Planning to change the production process to automatic one at 17 JF.

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