ORIGINAL RESEARCH PAPER

Community Medicine

PREVALENCE OF TYPE 2 DIABETES MELLITUS AMONG COTTON MILL WORKERS

Dr.Rupali A.Patle. Assistant Professor, Dept. of Community Medicine, Indira Gandhi Government Medical College, Nagpur, Maharashtra,India.

ABSTRACT

Introduction: Many studies on respiratory morbidities in cotton mill workers are done but studies on noncommunicable diseases are limited.

Aim and objectives: To study the prevalence of diabetes in cotton mill workers.

Methods: The present cross-sectional study was carried out among workers in the cotton mill workers of the Babasaheb Kedar Soot Girani in Hingna on 250 study subjects using pretested questionnaire and statistics of percentages, chi-square test.

Result: 80% males were above 40 years while 92% females below 40 years. Prevalence of diabetes in the cotton mill workers was found to be 9.20% out of which 82.60% were males and 17.40% were females. 73.09% of the study subjects were diagnosed during the study. Advancing age, working in sections other than spinning sections and lower socio-economic sections were found significantly associated with diabetes.

Conclusion: Prevalence of diabetes was 9.2% which is more than the normal population

INTRODUCTION

Occupational health is a branch of community medicine which deals with the effects of occupation or workplace on human health[1] Every occupation is associated with one or other ill effects on health. Cotton mill workers are susceptible to various morbid conditions by virtue of workplace and working conditions. These morbid conditions may range from chronic respiratory diseases due to cotton dust inhalation to anemia because of nutritional deficiency.[2] These workers, from adolescents to elderly and of both sexes are at higher risk of occupational diseases due to unsafe environment, longer hours of work, non availability of occupational health services and lack of knowledge regarding health risks due to occupation[3,4,5] In recent times the number of persons suffering from non-communicable diseases has found to increase. Prevalence of diabetes among general population has been increased.[6] Though many studies on chronic respiratory disease and morbidity profile among cotton mill workers have been carried out; a study for diabetes among cotton mill worker is limited. So present study has been carried out with the objective of studying the prevalence of non-communicable disease with special reference to diabetes.

Aim and objective:

To study the prevalence of type 2diabetes mellitus in cotton mill workers.

MATERIAL AND METHODS

The present cross-sectional study was carried out among workers in the cotton mill workers of the Babasaheb Kedar Soot Girani pvt. Ltd.in Hingna tehsil. The total staff i.e. 474 workers, working in the cotton mill were included in the study. The workers works in three shifts, morning, afternoon and night. All female staff works in the morning shift. The various sections include mixing, blow room, carding, speed frame, ring frame and winding, maintenance, electrical and clerical. After taking informed consent, Interview techniques was used to collect information on a predesigned proforma regarding demographic data, occupational history, history of use of safety devices, history of present and past complaints with special history about diabetes. This was followed by complete clinical examination and laboratory examination of random blood glucose. If random glucose was found to be increased, fasting and post meal blood sugar was done for diagnosis. Standard diagnostic criteria were used for the diagnosis of various morbid conditions according to ICD 10. The study subjects with diagnosis of Diabetes mellitus and taking medication are considered as known case of diabetes. Statistical test used were percentages, chi-square test.

RESULTS

TABLE 1: Distribution of study subjects according to their socio-demographic characters

Socio-Demographic Characters	Male (N=160)	Female (N=90)	Total (N=250)
Age			
20-39	33 (20.62)	83 (92.22)	116 (46.40)
40-59	124 (77.50)	6 (6.67)	130 (52.00)
>60 years	3 (1.88)	1 (1.11)	4 (1.60)
Education			
Illiterate	10 (6.25)	1 (1.11)	11 (4.40)
Primary	45 (28.13)	67 (74.45)	112 (44.80)
Middle and secondary	70 (43.75)	18 (20.00)	88 (35.20)
Higher secondary	30 (18.75)	4 (4.44)	34 (13.60)
Graduate and postgraduate	5 (3.12)	0	5 (2.00)
Socio-economic status			
I	1 (0.62)	0	1 (0.40)
II	19 (11.88)	9 (10.00)	28 (11.20)
III	68 (42.50)	24 (26.67)	92 (36.80)
IV	56 (35.00)	47 (52.22)	103 (41.20)
V	16 (10.00)	10 (6.25)	26 (10.40)
Working section			
Winding			
Speed frame	25 (15.62)	9 (10)	34 (13.60)
Carding	10 (6.25)	7 (7.78)	17 (6.80)
Ring frame	5 (3.13)	3 (3.33)	8 (3.20)
Blowing	67 (41.88)	42 (46.67)	109 (43.60)
Carding	8 (5.00)	15 (16.67)	23 (9.20)
Others	11 (6.88)	10 (11.11)	21 (8.40)
	34 (21.25)	5 (5.56)	39 (15.60)
Addictions			
No addiction			
Smoking only	08(5.00)	50 (55.56)	58 (23.20)
Alcohol only	10 (6.25)	00	10(4.00)
Tobacco chewing only	47 (29.37)	00	47(18.80)
More than one addiction	56 (35.00)	40 (44.44)	96(38.40)
	39 (24.37)	00	39(15.60)
Duration of exposure			
< 5 years	9 (5.63)	67 (74.44)	76 (30.40)
5-10 years	53(33.13)	13 (14.44)	66 (26.40)
>10 years	98(61.25)	10 (11.11)	108 (43.20)

TABLE 2: Distribution of study subjects according to diagnosis of diabetes

Diagnosis of diabetes	Male	Female	Total
Already diagnosed	**5 (26.32)**	**1 (25.00)**	**06 (26.09)**
-On medication -Not taking medicine	4 (21.05) 1(5.26)	1 (25.00) 0	5 (21.74) 1 (4.35)
Diagnosed after study	**14 (73.68)**	**3 (75.00)**	**17 (73.91)**
-Asymptomatic -Symptomatic	9 (47.37) 5 (26.32)	1 (25.00) 2 (50.00)	10 (43.48) 7 (30.43)
Total	**19 (100)**	**4 (100)**	**23 (100)**

TABLE 3: Distribution of study subjects according to diabetes and socio-demographic factors

Socio-demographic factors	Diabetes		P value	Odd'S Ratio
	Yes (n=23)	No (n=227)		
Age <40 years >40 years	5 (21.74) 18 (78.26)	113 (49.78) 114 (50.22)	x^2=6.59 p=0.0103	0.28 (CI=0.10-0.40)
Socio-economic status I-III IV-V	8 (34.78) 15(65.22)	113 (49.78) 114 (50.22)	x^2=1.88 p=0.1702	0.55 (CI=0.22-0.76)
Working section Winding Speed frame Carding Ring frame Blowing Carding Others	2 (8.70) 1 (4.35) 0 9(39.13) 1(4.35) 1(4.35) 9(39.13)	32 (14.10) 16 (7.04) 8 (3.52) 100 (44.05) 22 (9.69) 20 (8.81) 30 (13.21)	x^2=10.65 P=0.0011	0.24(CI=0.09-0.40)
Duration of exposure <5 years >5 years	4 (17.39) 19 (82.60)	72 (31.72) 155(68.28)	x^2= 2.03 P=0.1546	0.45(CI=0.15-0.67)
Addictions No addiction Smoking only Alcohol only Tobacco chewing only More than one addiction	1(4.35) 1(4.35) 2(8.70) 7 (30.84) 12 (52.86)	57 (25.11) 9 (3.96) 45(23.35) 89(39.21) 27(11.89)	x^2=25.73 P=0.0000	0.12(CI=0.05-0.21)

DISCUSSION

While most had studied prevalence of respiratory morbidities in cotton mill workers, it is important to study various non-communicable diseases which are on the verge of increase. Prevalence of one such disease i.e. Diabetes was found to be 9.2% slightly more than in the normal population in India. But it is almost similar to the studies by Yerpude PN[5], Prasad VG[7] who had done studies in cotton mill worker only. While 6 (26.09%) study subjects were already diagnosed, 5 (21.74%) of them were taking medications for it, 1 (4.35%) person has left the medication after 2 months of initiation. 17 (73.91%) of the study subjects were unaware of the disease. It was only after the study they came to know of diagnosis. While 10 (43.48%) were asymptomatic, 7 (30.43%) of the study subjects had symptoms like polyuria, polydypsia, urinary tract infection, recurrent ulceration. In the present study age more than 40 years, more than one addiction, Subjects working in other departments were significantly associated with the occurrence of diabetes.The other departments include maintenance, electrical and clerical which are more sedentary as compared to workers in spinning section. Advanced age, all addictions including tobacco chewing, smoking and alcohol are known risk factors for diabetes.

The important thing found during the study is that only 26.09% of the study subjects were already diagnosed prior to study while 73.91% of the study subjects were diagnosed with diabetes during the study. They include both symptomatic as well as asymptomatic subjects.

Conclusion and recommendations: Prevalence of one such non communicable disease i.e. Diabetes in this study was found to be 9.2%.

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