BRIEF COMMUNICATIONS AAEM

Ann Agric Environ Med 2001, 8, 103–105

EVALUATION OF DENTAL HEALTH IN MILL WORKERS. PART I. THE STATE OF DENTITION

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Bachanek T, Pawłowicz A, Tarczydło B, Chałas R: Evaluation of dental health in mill workers. Part I. The state of dentition. *Ann Agric Environ Med* 2001, **8**, 103–105.

Abstract: A study of the oral health of workers in flour mills was carried out. The examined group consisted of 40 males and 8 females, currently employed at flour mills. The results of the research indicate the necessity of intensification of stomatological care among mill workers.

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Key words: millers, flour dust, dental health, caries, dental treatment.

INTRODUCTION

Diseases of the masticatory organ are very common among modern society. Due to its common appearance and health effects, dental caries and parodontopathy are social diseases [6]. Dental caries is a disease which appears in all age groups, regardless of gender, place of residence and work environment. On the other hand, in etiopathogenesis of parodontopathy, except for local inflammatory factors, systemic factors play essential role.

The increase of caries incidence has been observed in workers who have frequent contact with flour or sugar dust, that is, in millers, the workers of sugar refineries, confectioners, bakers and workers in the fruit industry (debris) [3, 5, 9]. Flour dust is softer than sugar dust, nevertheless, both form debris on the vestibular surface of incisors. That leads to the appearance of cervical dental caries and in a later stage to the breaking of the dental crown [1].

The aim of the present work was to study the incidence of dental caries among the workers of flour mills and to evaluate therapeutic needs of this occupational group.

MATERIALS AND METHODS

The research covered 48 workers employed in three flour mills located in the city of Lublin. The group consisted of 40 men and 8 women aged 20–53 who were inhabitants of cities and villages. Examination of the dentition was conducted in artificial light, using a mirror and dental explorer. The results of the examination were recorded with numerical code on special cards recommended by the WHO.

On the basis of the data collected in epidemiologic examination the following parameters were evaluated:

- Ci = caries incidence;
- D = the average number of decayed teeth;
- M = the average number of missing teeth;
- F = the average number of teeth with fillings;
- the DMFT index = D+ M+ F;
- $f_{(D=0)}$ = the number of caries-resistant persons (D=0);
- $\%_{(D=0)}$ = the percentage of caries-resistant persons (D=0);
- $f_{(M=0)}$ = the number of persons with full dentition (M=0);
- $\%_{(M=0)}$ = the percent of persons with full dentition (M=0);

Received: 12 December 2000
Accepted: 25 April 2001

Table 1. Caries incidence (Ci) in the examined group of millers.

Gender	Number of examined persons (n)	Number of persons with DMFT > 0	Caries incidence
Male	40	40	100
Female	8	8	100
Total	48	48	100

Table 2. DMFT index and D, M, F values in the examined group of millers.

Gender	Number of examined persons (n)	D (decayed teeth)		M (missing teeth)		F (filled teeth)		DMFT index	
		sum	mean	sum	mean	sum	mean	sum	mean
Male	40	250	6.25	312	7.80	134	3.35	696	17.40
Female	8	40	5.00	75	9.37	42	5.25	157	19.62
Total	48	290	6.04	387	8.06	176	3.67	853	17.77

Table 3. Number ($f_{(D=0)}$) and percentage ($\%_{(D=0)}$) of caries-resistant persons (D=0) in the examined group of millers.

Gender	Number of examined persons (n)	$f_{(D=0)}$	$\%_{(D=0)}$
Male	40	3	7.50
Female	8	1	12.50
Total	48	4	8.33

Table 4. Number ($f_{(D=0)}$) and percentage ($\%_{(D=0)}$) of persons with full dentition (M = 0) in the examined group of millers.

Gender	Number of examined persons (n)	$f_{(D=0)}$	$\%_{(D=0)}$
Male	40	5	12.50
Female	8	2	25.00
Total	48	7	14.58

Table 5. Treatment Index (TI) and Structure Treatment Index (STI) in the examined group of millers.

Gender	Number of examined persons (n)	TI index	STI index
Male	40	0.35	69.95
Female	8	0.51	64.10
Total	48	0.38	68.74

Table 6. The therapeutic needs for teeth with caries: conservative treatment (ct), endodontic treatment (et) and extraction (ex) in the examined group of millers.

Gender	Number of teeth with caries (D)	Treatment needs					
		Number (f)			Percentage (%)		
		ct	et	ex	ct	et	ex
Male	250	161	30	59	64.40	12.00	23.60
Female	40	32	5	3	80.00	12.50	7.50
Total	290	193	35	62	65.55	12.07	21.38

- treatment index TI = F/D+F;
- structure treatment index STI = M/(M+F) × 100%.

The therapeutic needs for conservative treatment, the endodontic treatment and extraction were also determined.

RESULTS

The results are shown in the Tables 1–6. In the examined group the caries incidence (Ci) amounted to 100% (Tab. 1).

The average DMFT index was 17.40 in males, 19.62 in females and 17.77 in the whole examined group.

Table 3 shows that in the examined group of millers only three men (7.5%) and one woman (12.5%) were carries-resistant. Only seven persons examined (14.58%) had full dentition (M= 0), five men and two women (Tab. 4).

The treatment index (TI) in the examined group of millers amounted to 0.38 and the structure treatment index (STI) to 68.74%. The types of therapeutic needs for teeth with caries are presented in Table 6. The greatest number of teeth were qualified for conservative treatment, namely filling of cavities (66.55%). 12.07% of teeth were qualified for endodontic treatment and 21.38% were qualified for extraction.

DISCUSSION

The results of the research have shown the unfavourable epidemiologic situation concerning the dentition of millers. The frequency of decayed teeth in the examined group was high and amounted to 100%. Similarly, the average DMFT index was high (17.77). In the examined group only four persons (8.33%) were without active caries focus and hence did not need stomatological treatment. The present results conform to earlier reports on the increase of caries incidence among persons exposed to flour and sugar dust: millers, confectioners and bakers [2, 3, 4, 9].

Reinhardt and Kittner [8] observed significantly more often the incidence of caries in persons exposed to organic dust. Petersen and Herman [7] noticed a high rate of average DMFT index (20.52) in workers of the Danish Granite Industry exposed to inorganic dust.

To evaluate the efficiency of stomatological care in the examined group the treatment index (TI) and structure treatment index (STI) have been used. The available literature does not give any data referring to the described indexes in the workers of the flour industry. The low rate of TI – 0.38, high rate of STI – 68.74, and the low percentage of persons with full dentition (14.58%) can be evidence of unsatisfactory availability of stomatological treatment, and also of low health consciousness of the examined group.

CONCLUSIONS

1. High rate of the average DMFT index and 100% frequency of caries is evidence of the bad state of dentition in millers.

2. The low percentage of persons without active caries focus and with full dentition shows the necessity of actions for improvement the stomatological consciousness of the workers of flour mills.

3. The results of the research indicate the necessity of stomatological care intensification among workers of flour mills.

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