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Dentition status in patients treated for anorexia nervosa

Anorexia nervosa (Gr. "an" – no, "orexis" – appetite) is a disease of psychological origin involving a conscious refusal to consume food. The first description of "persistent lack of appetite" goes back to the year 1689. A detailed description of the entity called "anorexia nervosa" dates back to the second half of the 19th century. In Poland every one hundredth girl is anorexic. Worldwide anorexics account for 1% of all girls and young women. Boys develop the disease 10 times less frequently (1, 8).

The disease mainly affects young people between 16 and 20 years of age. They drastically restrict the amount of consumed food which leads to a quick uncontrollable loss of weight. Such a lifestyle often leads to emaciation of the organism. The first alarming symptoms include: a paralyzing fear of gaining weight or becoming obese in spite of being underweight, negative perception of one's body, low self-esteem. According to scientists, the reason for such an attitude is the girls' fear of becoming adult women; by starving themselves they lose feminine curves, i.e. rounded hips and breasts. Anorexics also lose their monthly periods. In most cases they have a lowered perception of what they are worth.

The American Psychiatric Society lists 4 criteria which qualify a person as anorectic: loss or no weight gain during growth, a strong fear of increasing one's weight, a disturbed image of one's own body, loss of several consecutive menstrual periods. In anorexia, the same as during any other emaciating fasting, there appear complications which include diminished sufficiency of the heart, irregular heartbeat, low blood pressure (4).

People suffering from anorexia nervosa are not capable of maintaining a constant body temperature. They are permanently cold. Low serum glucose and female hormones are observed. Lanugo appears on the skin. The work of digestive system and kidneys deteriorates, which brings about dehydration and emaciation of the body. Lack of food and gruelling exercise cause a decrease in body weight. Malnutrition leads to a cessation of menstrual cycles, and in boys to a loss of libido and erection. Slimness becomes thinness, and then gaunt. If further development of the disease is not prevented, the eyes and cheeks sink in. Next the hair starts to fall out, and eventually also the teeth (6, 10).

Apart from growing symptoms, anorexics preserve their intellectual ability and physical fitness for a long time. At first the loss of body weight is achieved at the expense of adipose tissue, and when the reserves of fat have been exhausted, the systemic proteins are used up. No significant abnormalities are initially found in laboratory tests, later on there develop disturbances in the water and electrolyte balance of the body. The next stage is hormonal disturbances (3, 4, 9).

Psychoanalysis experts explain anorexia as a hidden hostility towards the mother. Other authors point to traumas in early childhood, upbringing errors, a pathological structure of the family, rejection of one's own sex, aversion to adulthood, and especially to sexual puberty (1).

In some cases, thanks to a timely intervention of the people around or a renewal of proper relationships with the loved ones, anorexics spontaneously resume eating and gain weight which almost returns to normal. Yet, it also happens that the affected person's destructive behaviour is not stopped and then anorexia may prove fatal. No less than 7% of anorectic women die, and only 40–60% are completely cured (2, 5).

The aim of the study was to: evaluate the influence of dwelling place, education, use of weight reduction methods on the kind of disturbances developing as a result of fasting; evaluate the condition of mucous membrane and dentition in patients treated for anorexia nervosa.

MATERIAL AND METHODS

The study encompassed 17 women aged 15–41 years, hospitalized in the Department of Psychiatry, Medical University of Lublin, Poland. A questionnaire survey and a clinical examination were conducted. In the questionnaire the following were taken into account: the ages of subjects in the clinical group and the control group, marital status, place of living, education, weight loss, frequency of weighing and the kinds of disturbances occurring as a result of fasting.

Table 1. Weight loss in anorexia nervosa patients

Weight loss in kg	6–13		14–20		21–28		28–37	
	number of subjects	%	number of subjects	%	number of subjects	%	number of subjects	%
16	4	25	8	50	3	18.75	1	6.25

Table 2. Kinds of measures leading to a decrease in body weight

Measure to decrease body weight	Number of patients	%	Total number of patients
Diuretics	2	11.7	17
Physical exercise (jogging, cycling, stomach muscle exercises)	8	47	
Drugs reducing appetite	2	11.7	
Avoiding high-calorie meals	15	88.2	
Inducing vomiting	11	64.7	
Increasing the amount of consumed fluids	8	47	
Purgatives	7	41.1	

Table 3. Kinds of disorders occurring as a result of ongoing fasting

Complaints and disorders in the studied population	Number of subjects	%	Total number of patients
Hair loss	15	88.2	17
Nail breaking	16	94.1	
Facial lanugo	1	5.8	
Constipation	12	70.5	
Flatulence	11	64.7	
Amenorrhoea	14	82.3	
Decrease in blood pressure	14	82.3	

Table 4. Classification of patients with reference to oral mucosa status

Oral mucosa status	Number of patients	%	Total number of patients
Pale	6	35.3	17
Pink	10	58.8	
Dry	1	5.9	
Wet	14	82.3	

Table 5. Malocclusion in anorexia nervosa patients

Total number of subjects	Normal occlusion		Malocclusion	
	number of patients	%	number of patients	%
17	14	82.3	3	17.6

Table 6. The values of mean DMF (decayed-missing-filled) index and its components

	DMF (decayed-missing-filled)	D (decayed)	M (missing)	F (filled)
Study group	19.5	6.6	2.7	10.2
Control group	19.9	5.5	2.4	12

Table 7. The values of mean DMF index and its components with reference to age groups

Patients' ages in years	DMF	D	M	F
15-21	16.00	5.12	0.63	10.30
21-41	23.28	7.28	4.10	10.14

The dental examination was carried out with the use of a probe and dental mirror. The status of dentition and mucous membranes were evaluated in both clinical and control group. Frequency of dental visits was taken into account, as well as the condition of oral cavity mucosa, the value of DMF index and its components.

RESULTS

It was established from the patients' histories and clinical records that they had lost a considerable amount of weight during illness: the minimal value was 6 kg and maximum value was 37 kg. The mean weight loss in the clinical group was 17.8 kg, which accounts for about 30% of body weight before the illness.

The patients declared doing physical exercises to excess (9 patients), which were to bring about weight reduction. The kinds of exercise included jogging, cycling, exercise to strengthen stomach muscles, etc. All the subjects had adequate knowledge concerning anorexia nervosa and were aware of the possible consequences for themselves. In spite of that, 15 avoided high-calorie meals and 7 used purgative medicines regularly. A small percentage of the surveyed used diuretics (2 patients) or drugs reducing appetite (2 patients). 11 women provoked vomiting 3 times a day on average, in most cases directly after a meal. Some patients increased the amount of ingested fluid (8 patients).

A characteristic behaviour in anorexia is body weight checking. The questionnaire survey revealed that the frequency of weight checks was an individual characteristic; identical percentage of the surveyed checked their weight once a week or more often (1 or more times a day).

In the course of the study a lot of physical and physiological disturbances connected with fasting were observed. They refer to different body systems. Accompanying a significant weight loss there appeared hair loss (in 15 subjects) and nail breaking (16 subjects). One patient presented facial lanugo. No swellings within the salivary glands were observed in the studied population. There were abnormalities within the digestive system: constipation in 12 cases, flatulence in 11. Most patients reported some pain and discomfort in the abdominal cavity (16 subjects). The significant weight loss was accompanied in the majority of the patients with a decrease in blood pressure. As a result of hormonal imbalance amenorrhoea was observed in 82% of the studied group. The abnormalities mentioned above were present in patients who had been sick for over 12 months (13 women). The data were obtained from medical records.

A considerable proportion of the subjects declared getting regular dental check-ups, i.e. every 6 months; only 3 patients visited their dental practitioner less frequently than once in a year. No abnormalities were observed on the examination of lymphatic glands. The mucous membrane of the oral cavity did not reveal any pathological changes in most anorexic women; it was pink-coloured in most cases – 11 patients, it was wet in 14 patients, and pale in 6 patients. Dryness of the mucous membrane was observed in one subject. Malocclusion was seen in 14 patients, which could be attributed to the development of dysfunction due to functional disturbances within the masticatory system. Prosthetic appliances in the form of bridges were found in 3 patients.

The mean value of the DMF caries index and the distribution of its components gives a detailed picture of the intensity of caries in the studied population. The DMF value in the studied group was 19.5, and it was similar to the control group in which it equalled 19.9. Yet, its distribution, i.e. the percentages of D, M, and F in this mean value treated as 100%, is a very important issue. A higher mean value of the DMF index was noted for patients in the age group 21–41 years, compared to the age group 15–21 years. The difference in the mean value of the DMF index (7.28) between these two groups may have been caused by the subjects' age or the stage and length of disease course. The biggest difference was noted in the number of extracted teeth, i.e. even 6.5-fold more missing teeth in the older age group.

Summing up, it can be stated that the results obtained in the study of the condition of the oral cavity in patients with anorexia nervosa did not differ significantly from those in the control group, with the exception of the number of filled teeth which was lower. Despite considerable systemic abnormalities, pathological processes did not exert a significant influence on the oral cavity and dentition status.

DISCUSSION

The most common stigma of persistent vomiting is erosion of dental enamel which occurs in the majority of patients who have vomited three times a week for a minimum of 4 years. Enamel is lost from the lingual and palatal surfaces of the anterior teeth. Eventually dentine is exposed and the teeth become sensitive and vulnerable to caries. The erosion is probably exacerbated if the teeth are brushed after vomiting. Vomiting and nutritional changes in mouth pH lead to a change in mouth flora (12, 13).

In the available literature one paper was found concerning pathological changes within the oral cavity in the course of anorexia nervosa (2). The present study revealed the values of the DMF index similar to those obtained by other authors (7, 11). The observed systemic changes were also similar to those detected by Banaś (2).

CONCLUSIONS

1. The study population treated for anorexia nervosa at the Psychiatric Department of the Medical University of Lublin consisted of young women, mean age: 23 years.

2. As a result of considerable weight loss, the patients developed amenorrhoea, hair fallout, nail breaking, their blood pressure decreased, they developed constipation and flatulence.

3. In patients diagnosed with anorexia nervosa the value of DMF caries index was a little higher than in the control group. No significant abnormalities were found in oral mucosa.

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SUMMARY

The aim of the study was to evaluate the status of the oral cavity in patients with anorexia nervosa. A general health status of the subjects was taken into account, as well as their social environment. The survey revealed that education, dwelling place and the number of family members were not directly related to anorexia incidence. The patients presented a significant weight loss, even 30%, compared to body weight before the disease. The ongoing pathological state encouraged the development of erosions in the corners of the mouth and a negligible increase of caries intensity. The obtained results should serve to improve the dental and general health care of patients with anorexia nervosa.

Stan uzębienia u pacjentek leczonych z powodu jadłowstrętu psychicznego (*anorexia nervosa*)

Celem pracy była ocena stanu jamy ustnej u pacjentek z *anorexia nervosa*. Uwzględniono stan ogólny zdrowia badanych oraz środowisko, z którego się wywodzą. Badanie wykazało, że wykształcenie, miejsce zamieszkania oraz liczba członków rodziny nie mają bezpośredniego wpływu na częstość występowania choroby. U pacjentek stwierdzono dużą utratę wagi ciała – do 30% w stosunku do stanu przed chorobą. Toczący się proces sprzyjał występowaniu nadżerek w kąciakach ust i nieznacznemu zwiększeniu intensywności próchnicy. Uzyskane wyniki powinny służyć poprawie opieki stomatologicznej i ogólnej nad chorymi na *anorexia nervosa*.