

# Correlation between cervical lesions of the teeth and self-reported systemic diseases in young people

## Korelacja pomiędzy zmianami przyszyjkowymi zębów a zgłaszanymi przez młodzież chorobami ogólnoustrojowymi

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### KEY WORDS:

systemic disease, erosion, dental caries, non-carious cervical lesions

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### HASŁA INDEKSOWE:

choroba ogólnoustrojowa, erozja, próchnica, niepróchnicowe zmiany przyszyjkowe

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### Summary

**Introduction.** The condition of the oral cavity is closely related to the person's systemic health.

**Aim of the study.** To determine the prevalence of self-reported systemic diseases and related complaints, medical history among young people and reveal the correlation between systemic diseases and cervical lesions of the teeth.

**Material and methods.** The study included 272 patients fully examined for the purpose of diagnosing cervical pathology of the teeth. The information about systemic diseases diagnosed in patients, presence of complaints related to them and medicine taken was obtained by means of a specially designed questionnaire.

**Results.** 41.9% of the participants reported systemic diseases while 67.5% had one disease. We have defined the correlation between the development of combined cervical lesions of the teeth and diseases of the digestive system and diseases of the circulatory system. A correlation

### Streszczenie

**Wstęp.** Stan jamy ustnej jest ściśle powiązany z ogólnoustrojowym zdrowiem człowieka.

**Cel pracy.** Określenie częstości występowania zgłaszanych przez siebie chorób ogólnoustrojowych i dolegliwości z nimi związanych, wywiadu chorobowego wśród młodych ludzi oraz poznanie korelacji pomiędzy chorobami ogólnoustrojowymi a zmianami przyszyjkowymi zębów.

**Material i metody.** Do badania włączono 272 pacjentów, poddanych pełnemu badaniu w celu diagnostyki patologii szyjki zębowej zębów. Za pomocą specjalnie opracowanej ankiety uzyskano informacje o zdiagnozowanych u pacjentów chorobach ogólnoustrojowych, występujących dolegliwościach z nimi związanych, przyjmowanych lekach.

**Wyniki.** Choroby ogólnoustrojowe zgłaszało 41,9% uczestników, natomiast 67,5% miało jedną chorobę. Określono korelację pomiędzy występowaniem połączonych zmian przyszyjko-

has been found between the presence of several systemic diseases in the medical history and enamel erosion and the development of combined cervical lesions of the teeth. We have identified a correlation between the presence of complaints in the medical history and cervical caries and the combination of dental defects in participants. A correlation has been determined between the complaints of bitterness and a feeling of halitosis and cervical lesions of the teeth in patients with diseases of the digestive system.

**Conclusions.** While planning individual treatment and preventive measures for young people we recommend considering the identified correlations to increase their effectiveness and prevent the development of combined forms of cervical lesions of the teeth.

## Introduction

Cervical lesions are the most common pathology in people over the age of 30.<sup>1</sup> They have multifactorial etiology with the patient's individual characteristics that influence the degree of tooth tissue loss and the development of associated defects.<sup>2</sup> Thus, it is considered relevant to find out etiological factors at an earlier age and for each clinical form of the lesion separately.<sup>3</sup>

Numerous publications indicate a close relationship between oral health and noncommunicable systemic diseases (SD) due to shared risk factors.<sup>4-6</sup> On the one hand, the development and course of organ and tissue pathology of the oral cavity depends on the severity of SD. On the other hand, the negative impact of dental diseases on the course of SD has been proven.<sup>7</sup> It is also known that changes in the oral cavity can be the first sign of SD, and thus, their early diagnosis will contribute to increasing the treatment effectiveness.<sup>8,9</sup>

Therefore, it is advisable to start the identification of etiological factors of cervical

wych zębów a chorobami układu pokarmowego i układu krążenia. Stwierdzono związek pomiędzy występowaniem w wywiadzie kilku chorób ogólnoustrojowych a erozją szkliwa i występowaniem połączonych zmian przyszyjkowych zębów. Zidentyfikowano korelację pomiędzy występowaniem dolegliwości w wywiadzie a próchnicą przyszykową oraz występowaniem wad zębowych u uczestników. Stwierdzono związek pomiędzy dolegliwościami związanymi z odczuwaniem goryczy, halitozy a zmianami przyszykowymi zębów u pacjentów z chorobami układu pokarmowego.

**Wnioski.** Planując indywidualne działania lecznicze i profilaktyczne dla młodych ludzi, zaleca się uwzględnienie zidentyfikowanych korelacji, aby zwiększyć ich skuteczność i zapobiec rozwojowi połączonych postaci zmian przyszyjkowych zębów.

lesions of the teeth with the assessment of the systemic health (SH) of the body. It has been proven that SD influence the balance between the processes of demineralization and remineralization.<sup>10</sup> Caries is the result of demineralization of the teeth caused by the microbial attack of bacteria present in the oral cavity.<sup>11</sup> Erosion (E) is mainly caused by chemical demineralization associated with dietary acid and acid reflux disorder.<sup>11,12</sup> Nowadays, a significant number of studies are devoted to the role of gastro-oesophageal reflux disease in its pathogenesis.<sup>2,13-17</sup> According to the data,<sup>16</sup> approximately 60% of patients consulting a dentist concerning dental erosion have gastro-oesophageal reflux disease with its minor symptoms. A number of researchers associate both E and dental caries as well as other forms of non-carious cervical lesions (NCCL) with it.<sup>18</sup> It has been proven that mineral and protein metabolism is disrupted against the background of microecological changes in the organs of the digestive system, and biochemical changes occur in phosphorus-calcium metabolism in the bones of the skeleton

and hard dental tissues.<sup>19</sup> But probably other SD can also influence the development of dental pathology and in cervical localization in particular.

Apart from the issue of SH in young people, the etiological factor is the long-term medicine intake. A number of authors determined that medicines were external factors of E, and the diseases treated with these medicines were internal factors.<sup>11</sup> There are also medicines that cause xerostomia and affect the protective role of saliva in relation to endogenous and external acids.<sup>11</sup> A decrease in the function of oral fluid that patients report as dry mouth contributes to E development,<sup>1,2</sup> and it increases the risk of development of caries and other dental pathologies.<sup>20</sup> The presence of xerostomia and complaints of bad breath correlate with the health of the oral cavity and these manifestations reduce the quality of life.<sup>21</sup> But patients do not always voluntarily want to share the information or they may not associate heartburn and digestive system disorders with dental defects.<sup>2</sup> Therefore, a complete medical history with data about medicine intake is likely to provide important information for the prevention of dental pathology.

The data obtained as a result of epidemiological studies are of great importance because they can determine specific etiological factors leading to disease development at the individual level.<sup>22,23</sup> Establishing the factors associated with cervical lesions of the teeth in people can serve as a guideline for specific preventive measures and they should be eliminated before these steps are taken.<sup>2,24,25</sup> Dentists can identify young people who are prone to the development of SD so that the development and progression of cervical pathology of the teeth in older age can be prevented.<sup>14,25</sup>

The study aims at determining the prevalence of self-reported SD in young people of the Donetsk region in Ukraine, conducting an analysis of related complaints and medical

histories, revealing the correlation between SD of the examined patients and cervical lesions of hard dental tissues.

## Materials and Methods

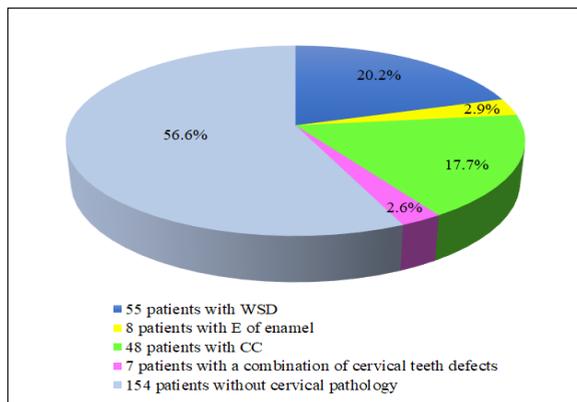
### *Inclusion and exclusion criteria*

The survey involved 272 patients (174 women and 98 men) at the age of 18-44 years (average age 24.3±6.9 years) seeking dental care at Department of Dentistry No. 2 of Donetsk National Medical University. Based on the classification of the World Health Organization (WHO) (2017) there were the following qualifying criteria: young age, household characteristics, employment history, permanent residence in the Donetsk region of Ukraine and the absence of harmful habits, pregnancy, postpartum period, neoplasms.

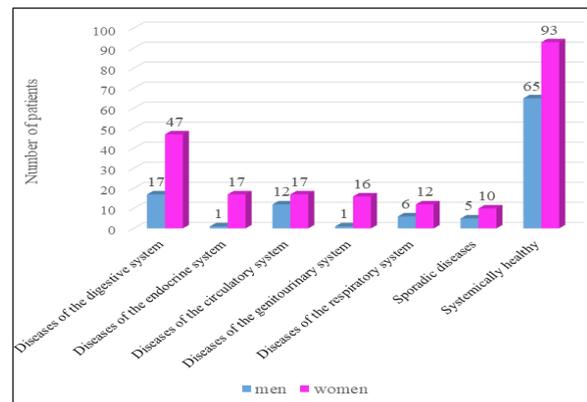
We performed the study based on the principles of WMA Declaration of Helsinki Ethical Principles for Medical Research Involving Human Objects as amended in 2013, Order N°. 690 of the Ministry of Health of Ukraine (dated September 23, 2009) and approved by the Bioethics Commission of Donetsk National Medical University (N° 43, dated January 21, 2021). Before the survey, a written informed consent was obtained from all the participants.

### *Clinical study of cervical lesions of the teeth*

A dental practitioner performed the clinical examination of hard dental tissues for the presence of NCCL and cervical caries (CC). The diagnosis of NCCL was established based on the Tooth Wear Index (TWI) by B.G. Smith, J.K. Knight with the help of a William's periodontal probe (Trinity®).<sup>2</sup> We classified NCCL according to their morphology (wedge-shaped defect (WSD) and E). A caries marker Izumrud (Latus, Ukraine) was used to make the diagnosis of CC. We identified a number of cervical defects (1-2 lesions were



**Fig. 1. Distribution of patients depending on the presence and type of cervical lesions of the teeth.**



**Fig. 2. Patients' gender depending on the presence and group of SD.**

considered single,  $\geq 3$  lesions were multiple) in each young person.<sup>22</sup> We diagnosed cervical lesions of the teeth in 43.4% of the examined patients (72 women (41.4%) and 46 men (46.9%)).<sup>25</sup> The distribution of patients depending on the presence and type of cervical pathology is presented in Fig. 1. We observed all erosive defects within the enamel. There was a combination of cervical pathology in 7 patients: 5 cases of E with WSD, 2 cases of E with CC.<sup>25</sup>

#### *Study of self-reported SD*

With the purpose of patients' detailed medical history and comprehensive examination a special questionnaire was prepared with the questions concerning the presence of SH (presence of complaints, SD, long-term medicine intake). All detected diseases were classified and grouped according to the International classification of diseases (ICD-11). Diseases that were sporadic in groups with SD (diseases of the visual system; diseases of the ear or mastoid process; diseases of the skin; diseases of the musculoskeletal system or connective tissue) were combined into "sporadic diseases" before statistical analysis. The patients without a history of SD were considered to be systemically healthy subjects.

#### *Statistical Analysis*

We performed statistical analysis with the help of the Statistica 12.0 computer program (3BA94C4ED07A). The G\*Power program was used to calculate the sample size. We calculated Student's t-test to compare average values in normally distributed populations. The differences were considered to be statistically significant at  $p \leq 0.05$ . Using Pearson's  $\chi^2$  test we compared nominal data. In cases where the number of expected trials was less than 5, Fisher's test was used to assess the level of significance of differences. With the help of non-parametric Spearman's rank coefficient ( $r$ ) we calculated the relationship between the indicators for quantitative data; the strength of the statistical relationship for nominal data was assessed using Cramer's V and Tshuprow's T tests.

#### **Results**

Based on the results of the clinical examination we divided all patients into five groups: group I – with WSD, group II – with enamel E, group III – with CC, group IV – with a combination of cervical defects of the teeth and group V – without any cervical pathology.

Table 1. Prevalence and the number of SD depending on the presence and type of cervical pathology of the teeth

Presence of SD	Groups (Number Positive for Disease in Group/% Positive for Disease in Group)					Total (abs./% from patients' total number) N=272
	I n=55	II n=8	III n=48	IV n=7	V n=154	
Prevalence of SD						
Digestive diseases	9/16.4	2/25	11/22.9	6/85.7	36/23.4	64/23.5
Endocrine diseases	6/10.9	1/12.5	2/4.2	1/14.3	8/5.2	18/6.6
Diseases of the circulatory system	8/14.5	2/25.0	5/10.4	3/42.9	11/7.1	29/10.7
Diseases of genitourinary system	5/9.1	1/12.5	1/2.1	0/0	10/6.5	6/2.2
Diseases of the respiratory system	2/3.6	1/12.5	4/8.3	1/14.3	10/6.5	18/6.6
Sporadic diseases	4/7.3	1/12.5	4/8.3	0/0	6/3.9	26/9.6
Systemically healthy	32/58.2	5/62.5	28/58.3	1/14.3	92/59.7	158/58.1
The number of SD in one patient						
One	16/29.1	1/12.5	14/29.2	2/28.6	44/28.6	77/28.3
Two	6/10.9	2/25.0	5/10.4	3/42.9	11/7.1	27/9.9
Three	2/3.6	1/12.5	1/2.1	1/14.3	5/3.2	10/3.7
Mean scores (M±m)	0.62±0.83	1.0±1.20	0.56±0.77	1.57±0.97	0.53±0.77	0.59±0.81

### *Identification of SD indicators and their correlation*

SD were reported by 41.9% of the examined patients (81 women (46.6%) and 33 men (33.7%)). (Table 1, Fig. 2) Due to the fact that none of the patients had any nutritional or metabolic diseases in their medical histories, the group was called “endocrine diseases” when analysing the obtained results. A correlation was established between the development of combined cervical lesions of the teeth and the diseases of the digestive system (medium strength,  $\chi^2=15.441$ ,  $p<0.001$ ) and the circulatory system (weak,  $\chi^2=7.819$ ,  $p=0.006$ ). A weak correlation was observed between the female gender and the development of endocrine diseases ( $\chi^2=7.615$ ,  $p=0.006$ ).

We identified from between one to three SDs among the patients while the vast majority had one disease (67.5%). A weak correlation was found between the development of several systemic pathologies and enamel E ( $\chi^2=5.4$ ,  $p=0.02$ ) and the development of combined cervical lesions of the teeth ( $\chi^2=6.5$ ,  $p=0.011$ ). A weak correlation was observed between the female gender and the development of several SD ( $\chi^2=5.232$ ,  $p=0.023$ ).

Depending on the presence and type of cervical pathology of the teeth mean scores of SD duration and patients' age are given in Table 2. A direct correlation of medium strength was determined between the patients' age and the development of SD in them ( $r=0.41$ ) or two or more ( $\chi^2=26.547$ ,  $p<0.001$ ). Thus, a direct correlation of medium strength was observed between participants' age and the development of diseases: endocrine diseases ( $\chi^2=12.99$ ), diseases of the circulatory system ( $\chi^2=22.45$ ), diseases of the genitourinary system ( $\chi^2=18.352$ ),  $p<0.001$ ).

### *Determining complaints of SH and their correlation*

The analysis of patients' complaints of SH

was carried out at the next stage of the study (Table 3). We observed a correlation between the complaints of discomfort in the digestive organs and diseases of the digestive system (medium strength  $\chi^2=28.992$ ,  $p<0.001$ ) and endocrine diseases (weak  $\chi^2=6.013$ ,  $p=0.015$ ) in patients' medical history. A correlation was observed between the complaints of heartburn (weak  $\chi^2=7.86$ ,  $p=0.006$ ), belching (medium strength  $\chi^2=15.421$ ,  $p<0.001$ ), bloating and nausea (medium strength  $\chi^2=9.96$ ,  $p=0.03$  and  $\chi^2=15.131$ ,  $p<0.001$ , respectively) in participants with diseases of the digestive system. A weak reliable correlation was determined with the complaints of bitterness and the feeling of bad breath ( $\chi^2=8.21$ ,  $p=0.004$  and  $\chi^2=6.901$ ,  $p=0.009$ ) in patients with diseases of the genitourinary system. A direct weak correlation was observed between the complaints of frequent nausea and cervical pathology of the teeth ( $\chi^2=5.242$ ,  $p=0.023$ ). Dry mouth was reliably associated with endocrine diseases and diseases of the circulatory system (medium strength  $\chi^2=19.831$ ,  $p<0.001$  and  $\chi^2=4.787$ ,  $p=0.028$ ). A correlation was observed between the time of tooth extraction and the complaint of xerostomia ( $\chi^2=11.95$ ,  $p<0.001$ ). Systemically healthy patients had significantly fewer complaints so there was a correlation of medium strength between the number of complaints and the presence of SD ( $\chi^2=12.245$ ,  $p<0.001$ ). A direct correlation of medium strength was determined between the presence of complaints in the medical history and CC ( $\chi^2=4.003$ ,  $p=0.046$ ), the combination of cervical defects of the teeth ( $\chi^2=15.441$ ,  $p<0.001$ ) in participants.

The complaints of SH in patients were separately analysed depending on the presence of diseases of the digestive system in their medical history and without it. A direct correlation was determined between the complaints of bitterness and the feeling of halitosis and cervical pathology of the teeth ( $\chi^2=8.0$ ,  $p=0.005$

Table 2. Mean scores of SD duration and age of patients depending on the presence and type of cervical pathology of the teeth, years (M±m)

Presence of SD	Groups					Total (abs./% from patients' total number) N=272
	I n=55	II n=8	III n=48	IV n=7	V n=154	
Mean scores of SD duration /Average age of patients						
Digestive diseases	4.25±6.12/ 25.3±4.0	12.10±8.17/ 35.5±7.8	4.64±6.09/ 26.7±7.1	13.10±7.80/ 28.5±8.0	2.16±5.03/ 25.2±7.2	9.08±6.34/ 26.1±7.0
Endocrine diseases	2.11±5.14/ 33.5±11.5	0.70±1.89/ 23.0±0.0	1.24±4.49/ 28.5±12.0	2.80±7.60/ 42.0±0.0	0.28±1.81/ 28.1±8.2	5.86±5.67/ 30.4±9.6
Diseases of the circulatory system	3.89±6.60/ 34.3±10.6	3.80±6.21/ 30.0±9.9	2.57±6.46/ 29.2±10.6	2.10±2.90/ 34.7±6.6	0.63±2.59/ 29.1±12.2	9.76±6.84/ 31.2±10.5
Diseases of genitourinary system	0.86±2.98/ 33.3±12.4	0.6±1.9/ 30.0±0.0	0.09±0.44/ 31.0±0.0	-	0.28±1.31/ 33.0±8.5	8.0±5.73/ 32.6±8.7
Diseases of the respiratory system	1.39±4.47/ 36.0±11.3	3.30±8.27/ 30.0±0.0	0.86±2.17/ 22.5±1.9	1.00±2.64/ 22.0±0.0	0.87±0.41/ 26.0±6.8	12.39±10.12/ 26.3±7.0
Sporadic diseases	2.03±5.08/ 28,8±6.4	2.00±6.33/ 37.0±0.0	2.0±5.73/ 29.2±7.9	-	0.31±0.70/ 26.7±8.3	7.24±6.43/ 28.5±8.1
Mean scores	2.42±6.61/ 25.6±6.6	3.67±7.03/ 22.0±2.2	1.90±4.90/ 21.1±3.1	3.19±6.41/ 23.0±0.0	0.75±3.21/ 21.4±4.4	0.88±3.44/ 27.2±7.9

Table 3. Prevalence and the number of complaints of SH in patients depending on the presence and type of cervical pathology of the teeth

Complaints of	Presence of digestive diseases in the medical history	Groups (abs./% of the total number of patients in the group)					Total (abs./% from patients' total number) N=272
		I n=55	II n=8	III n=48	IV n=7	V n=154	
Prevalence of complaints in patients depending on the presence of diseases of the digestive system in the medical history							
discomfort in digestive organs	present	1/1.8	1/12.5	2/4.2	4/57.0	14/9.0	38/14
	absent	4/7.2	0	2/4.2	0	10/6.5	
bloating	present	2/3.6	1/12.5	2/4.2	3/42.0	5/3.0	26/9.6
	absent	6/11.0	0	2/4.1	0	5/3.2	
heartburn	present	1/1.8	1/12.5	3/6.3	3/42.0	7/4.5	35/12.7
	absent	1/1.8	1/1.8	3/6.3	0	15/10.0	
belching	present	0	1/12.5	0	3/42.0	5/3.0	12/4.4
	absent	0	0	0	0	3/2.2	
nausea	present	2/3.6	1/12.5	1/12.5	2/28.0	5/3.2	18/6.0
	absent	2/3.6	0	4/8.3	0	1/0.6	
bitterness in the mouth	present	3/5.4	0	2/4.2	1/14.0	0	16/5.9
	absent	2/3.6	0	2/4.1	0	6/3.9	
dry mouth	present	1/1.8	0	4/8.3	1/1.8	3/2.0	32/11.8
	absent	6/11.0	0	6/12.5	0	11/7.1	
feeling of bad breath in the mouth	present	5/9.0	0	4/8.3	3/42.0	4/2.5	39/14.3
	absent	6/11.0	0	6/12.5	0	11/7.1	
The number of complaints of SH in one patient							
One		11/20.0	1/12.5	25/52.1	0	14/9.1	41/15.1
Two		12/22.0	0	3/6.3	1/12.5	19/12.3	35/12.9
Three		2/3.6	0	1/2.1	0	7/4.5	10/3.7
More than three		1/1.8	1/12.5	1/2.1	4/50.0	3/1.9	10/3.7
Mean scores (M±m)		0.84±1.08	0.75±1.75	1.00±1.14	2.87±2.74	0.75±0.99	0.65±1.00

Table 4. Medicine intake by participants depending on the presence and severity of cervical lesions of the teeth

Medicines	Groups (abs./% of the total number of patients in the group)				
	I n=55	II n=8	III n=48	IV n=7	V n=154
Multivitamins	5/9.0	0	3/6.3	1/14.2	22/14.2
Vitamin C	1/1.8	0	0	0	5/3.2
Hormones	2/3.6	1/12.5	1/2.0	0	8/5.2

and  $\chi^2=6.919$ ,  $p=0.009$ , respectively) in patients with diseases of the digestive system. A direct correlation of medium strength between the presence of the complaints of SH in the medical history and the combination of cervical pathology of the teeth (group IV) was also observed ( $\chi^2=15.441$ ,  $p<0.001$ ). Heartburn complaints were significantly more common in patients with gastritis than in patients with other diseases of the digestive system ( $\chi^2=3.954$ ,  $p=0.047$ ).

#### *Determining the medical history*

Due to the fact that the examined patients were young, only 14% took vitamins (32 patients multivitamins 11.8% , 6 patients 2.2.% vitamin C) and 4.4% (12 patients) hormonal medicines (Table 4). The average duration of multivitamin intake was  $3.09\pm 2.48$  years, vitamin C  $6.33\pm 4.63$  years, hormonal medicines  $2.93\pm 2.03$  years. There was a correlation between medicine intake and endocrine diseases (medium strength  $\chi^2=16.263$ ,  $p<0.001$ ) and diseases of the genitourinary system (weak  $\chi^2=10.592$ ,  $p=0.002$ ) in the medical history.

## **Discussion**

#### *Analysis of identified SD indicators and their correlation*

The most common ones in all groups were diseases of the digestive system (Table 1), which are considered to be the etiological factor

of NCCL.<sup>17,18,26</sup> The researchers included heartburn or acid reflux as important risk factors for tooth wear.<sup>27</sup> Gastro-oesophageal reflux disease was present in 13.6% of participants, and that corresponds to the results of other authors.<sup>26</sup> There are also other studies<sup>13</sup> that determined its prevalence at the level of 3.5% and suggested that acid exposure was not associated with the progression of erosive tooth wear.<sup>16</sup> The conducted study determined the correlation between the development of combined cervical lesions of the teeth and diseases of the digestive and the circulatory system. Other scientists also observed a correlation between diseases of the digestive system and NCCL,<sup>8,16</sup> caries and enamel E in children and adolescents.<sup>8,28</sup> It is explained by the fact that the oral cavity is a part of the digestive system and changes within can be a manifestation of diseases of the digestive system.<sup>8</sup> The publications describing the existence of a correlation between unsatisfactory oral health and diseases of the circulatory system are sporadic.<sup>9</sup> We did not find any mention of the correlation between several SD in the medical history and the development of enamel E and associated cervical lesions of the teeth in the literature. The absence of a reliable correlation between the number of cervical lesions in one patient (WSD, enamel E, CC) and the number of SD (Table 1) can be explained by the young age of the examined patients and the insignificant duration of the systemic pathology. It is confirmed by a certain

correlation between the patients' age (Table 2) and their development of one SD or more in them.

Studies exist that did not reveal any correlation between gender, SD and enamel E in children.<sup>29</sup> Other scientists reported a correlation between gender and tooth wear.<sup>26</sup> The conducted analysis determined a correlation between the female gender (Fig. 2) and the development of endocrine diseases and the development of several SDs in the participants.

#### *Analysis of identified complaints of SH and peculiarities of the medical history*

Scientific studies report the data on the correlation between vitamin intake (especially vitamin C tablets) and E development.<sup>16,30,31</sup> According to the data,<sup>28</sup> the intake of vitamin C is an etiological factor of E. There are also studies<sup>23</sup> in which there was a correlation between medicine intake and the development of heartburn complaints and xerostomia.<sup>30</sup> Other authors associated dry mouth with the number of the teeth, tooth wear and in combination with gastro-oesophageal reflux disease.<sup>32</sup> The present study did not determine a significant correlation between the development of a complaint of dry mouth and the number of extracted teeth in the patient, but a significant correlation was observed between the appearance of this complaint and the time of tooth extraction. Although the correlation between the complaints of those examined patients with and without diseases of the digestive system was slightly different (Table 3), we recommend considering their presence to predict the development of cervical lesions of the teeth. In addition, a significant number of the complaints of SH in patients without a medical history of SD indicates that a large percentage of patients ignore their presence and they do not report to specialists for diagnosis and appropriate treatment.

The conducted study did not reveal any

correlation between medicine intake (Table 4) and the occurrence of complaints of SH and the development of cervical lesions of the teeth. This is probably due to the short period of medicine intake by the participants. However, a correlation was determined between medicine intake and endocrine diseases and diseases of the genitourinary system. Analysing the obtained results it was established that a greater number of correlations between SD and cervical lesions of the teeth was observed in the group of patients with a combination of defects that could be explained by the interaction of several etiological factors.<sup>2</sup>

#### *Limitation of the study*

There were some limitations in the conducted study. Firstly, there were 64% of women in the examined sample of patients; secondly, the sample was represented by only young patients living in a certain geographic region; thirdly, after the comprehensive examination the study groups that were formed differed significantly in number. Also, it is impossible to consider the information obtained from questionnaires as reliably objective. All these facts limit the generalization of the obtained results.

## **Conclusions**

The given results make it possible to understand the correlation between the health of the oral cavity and the person's SH based on the example of cervical lesions of the teeth. A long-term sustainable oral health strategy for young people should focus on strengthening their SH through the prevention of SDs with the help of an effective multidisciplinary approach. Careful medical history taking and complex clinical examination with the involvement of other specialists are measures that influence the effectiveness of treatment and prevention of medical issues in such patients.

Therefore, we recommend accounting for the obtained data when planning both individual treatment and preventive measures to reduce the prevalence of cervical lesions of the teeth and to prevent the development of their combined forms.

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