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ANALYSIS OF MORBIDITY AND MORTALITY OF PATIENTS WITH MALIGNANT NEOPLASMS OF THE LIP AND ORAL CAVITY IN UKRAINE

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The paper analyzes the morbidity and mortality of patients with malignant neoplasms of the lip and oral cavity in Ukraine from 2010 to 2019. It compares it with global trends to justify decisions on the necessary preventive measures to reduce the burden of these diseases in the population of Ukraine. Data on morbidity and mortality in 2010–2019 were obtained from the issues of the Bulletin of the National Cancer Registry of Ukraine. The study used updated information published by the NCRU on the number of cases of MN of the lip (ICD code–10 C00) and oral cavity (C01–C08, C46.2) and deaths from these diseases in the population of Ukraine, as well as the corresponding age-standardized indices calculated for the standard world population. The calculation of indices absent in the publications was performed according to the data of the National Cancer Registry of Ukraine. The quality and completeness of the data of the National Cancer Registry of Ukraine are high and meet internationally accepted requirements. Cancer epidemiology indices of other countries were obtained from the Global Cancer Observatory project's web platform. According to the results of the study, there is a need to improve the system of care for cancer patients, review the existing and create a new regulatory framework in Ukraine, provide institutions with a sufficient number of specialists in maxillofacial oncology, increase the number of scientific studies in oncology, the need for annual preventive examinations, etc.

Key words: malignant neoplasms of the maxillofacial area, lip cancer, oral cancer

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АНАЛІЗ ЗАХВОРЮВАНOSTІ ТА СМЕРТНОСТІ ХВОРИХ НА ЗЛОЯКІСНІ НОВОУТВОРЕННЯ ГУБИ І РОТОВОЇ ПОРОЖНИНИ В УКРАЇНІ

У статті проведений аналіз захворюваності та смертності хворих на злоякісні новоутворення губи і ротової порожнини в Україні у 2010–2019 рр. і порівняння зі світовими тенденціями для обґрунтування рішень щодо необхідних заходів з профілактики для зниження тягаря цих захворювань у популяції України. Дані про захворюваність та смертність у 2010–2019 рр. отримані з випусків Бюлетеня Національного канцер-реєстру України: уточнені відомості про кількість випадків захворювання на ЗН губи (код МКХ–10 C00) і ротової порожнини (C01–C08, C46.2) та смертей внаслідок означених захворювань у популяції України, а також стандартизовані показники, розраховані для світового стандарту населення. Обчислення показників, відсутніх у публікаціях, виконано за даними Національного канцер-реєстру України. Якість і повнота даних Національного канцер-реєстру України є високою і відповідає міжнародно прийнятим вимогам. Онкоепідеміологічні показники інших країн світу отримані з веб-платформи проекту Global Cancer Observatory. За результатами дослідження виникає необхідність удосконалення системи надання допомоги онкологічним хворим, перегляду існуючої та створення нової нормативної бази України, забезпечення закладів достатньою кількістю фахівців в галузі щелепно-лицевої онкології, збільшення кількості наукових досліджень в сфері онкології, необхідність проведення щорічних профілактичних оглядів тощо.

Ключові слова: злоякісні новоутворення щелепно-лицевої ділянки, рак губи, рак ротової порожнини

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Cancer is now the second leading cause of death worldwide. The International Agency for Research on Cancer (IARC), as part of the Global Cancer Observatory – Cancer Today (GCO) project, has published forecast estimates of world statistics for cancer in 2020, calculated in cooperation with cancer registries based on information from previous years, obtained from 185 countries [7, 10]. It is estimated that in 2020, 19.3 million cases of cancer and 9.96 million deaths from it may be detected worldwide, of which 4.4 million cases and 1.9 million deaths in Europe [7, 10]. By 2040, the annual number of new cases in the world could rise to 30.2 million and 16.3 million deaths [10].

An increase in the burden of cancer may be due to population growth and aging, as well as to several factors that increase the risk of cancer, such as smoking, alcohol and drug abuse, solar radiation exposure, dietary disorders, decreased physical activity, etc. [4, 10]. The incidence of benign neoplasms in the maxillofacial area has been registered [14, 15].

In the GCO project, malignant neoplasms (MN) of the lip and oral cavity are represented by two groups of diseases with ICD codes C00–C06 and C07–C08. It is predicted that the total number of such diseases in 2020 will be 293,905 cases in the male population of the world, of which 50,300 in Europe, and 137,391 patients in the global female population, of which 24,896 in Europe [10]. These diseases account

for 2.9 % of the total number of MN cases in the world predicted for 2020 in men and 1.5 % in women. These values correspond to the 9th rating place in the world nosological structure of cancer incidence in the male population and 18th – in the female population. The prognostic indices for the share of deaths from the MN of the lip and oral cavity are similar: 2.5 % for men and 1.4 % for women and correspond to 11th place in the global structure of MN mortality in men and 16th place in women.

The predicted incidence of MN of the lip and oral cavity (C00-C08) for 2020 is 6.6 per 100 000 of the world's male population and 2.8⁰/₀₀₀₀ – for the female population. IARC data [11] indicate that MN of the lip and oral cavity are among the leading causes of cancer morbidity and mortality in Oceania, Central and South Asia; a relatively high incidence of such pathologies is also inherent in the countries of Western and Eastern Europe. In particular, Ukraine ranks 7th among European countries and 14th among 183 countries worldwide with a projected male morbidity rate of 9.9 per 100 000 of the population, with an average European level of 7.9⁰/₀₀₀₀. Although, the female incidence of MN of the lip and oral cavity in Ukraine is among the lowest in Europe – 1.8⁰/₀₀₀₀, at the mean European level of 2.9⁰/₀₀₀₀ [6, 10]. According to the predicted male mortality rate from MN of the lip and oral cavity in 2020 (5.5⁰/₀₀₀₀), Ukraine ranks the 6th in Europe after Belarus, Moldova, Hungary, Lithuania and Latvia (5.6–6.7⁰/₀₀₀₀) and 12th place among 180 countries of the world.

These values indicate the relevance of determining the place of MN of the lip and oral cavity in the general cancer epidemiology process in Ukraine. At the same time, experts are concerned that there is a rapid decrease in the availability of dental care in Ukraine in the transformation of the dental industry and a decrease in the number of visits to the dentist per capita per year [5]. Postponement of dental oncological examinations and medical care may negatively affect morbidity and mortality rates from MN of the lip and oral cavity in Ukraine.

The purpose of the study was to establish the morbidity and mortality of patients with malignant neoplasms of the lip and oral cavity to justify the necessary preventive and diagnostic measures to reduce the burden of these diseases in the population of Ukraine.

Materials and methods. The analysis of statistical indices of morbidity and mortality levels at MN of the lip and oral cavity in Ukraine from 2010 to 2019 was carried out according to annual bulletins No. 13–22 National Cancer Registry of Ukraine (NCRU) [12]. The calculation of indices absent in the publications was performed according to the NCRU database as of 2021. The quality of NCRU data is high enough for both comparative studies and the study of temporal changes, which is confirmed by modern internationally accepted criteria, in particular in [13]. When comparing morbidity or mortality in different years and/or countries, the difference in the demographic structure of populations should be considered. Therefore, a comparative analysis using an age-standardized parameter eliminates demographic differences. In this study, the world standard population coefficients were used for this purpose [9]. The study used updated information published by the NCRU on the number of cases of MN of the lip (ICD code–10 C00) and the oral cavity (C01–C08, C46.2) and deaths from these diseases in the population of Ukraine, as well as the corresponding age-standardized indices calculated for the standard world population. According to the NCRU, when calculating these indicators, data on cases of cancer and death of residents of the Autonomous Republic of Crimea in 2014–2019, Donetsk (in 2014–2019) and Luhansk (in 2013–2019) regions and Sevastopol (in 2013–2019) were withdrawn. Calculating all indices was performed according to generally accepted methods in medical statistics using the NCRU software. In 2020, cancer epidemiological indices of other countries were obtained from the GCO project' web platform [8], in 2008–2012 – from the Cancer Incidence in Five Continent, vol. XI (CI5) [8].

Results of the study and their discussion. For more than 20 years, the NCRU has been collecting information on all cancer incidents while maintaining its data's high quality and completeness. The NCRU presents its results in the form of statistical data and analytical papers, particularly in its annual bulletin “Cancer in Ukraine. Morbidity, mortality, performance indices of the cancer service”, which publishes the most commonly used indices, updated during the year following the reporting year and grouped by the most representative nosological groups. Along with other nosological forms of cancer, the NCRU annually publishes updated morbidity and mortality rates for MN of the lip (C00) and oral cavity (C01–C08, C46.2). According to these data, from 2010 to 2019, the NCRU registered 31,623 new cases of MN of the lip and oral cavity (C00 – C08, C46.2), of which 5 were MN of the palate (C46.2). 17,197 persons died as a result of these diseases.

MN of the lip (C00) is not a common oncological pathology in Ukraine, and about 500 new cases are registered annually (Fig. 1). In the structure of oncological morbidity in Ukraine, MN of the lip is 0.5 % in men and 0.2 % in women and occupies the 27th rank among all oncological diseases by specific weight. The incidence in men is 4.3–4.6 times more frequent than in women, and in recent years this ratio has

decreased. Lip cancer almost does not occur in patients younger than 35. Most often (more than 80 % of cases), this pathology is found in people over 60 years of age, regardless of gender. Moreover, in the 5-year age groups of the elderly and senile age, there is a rapid increase in age indices.

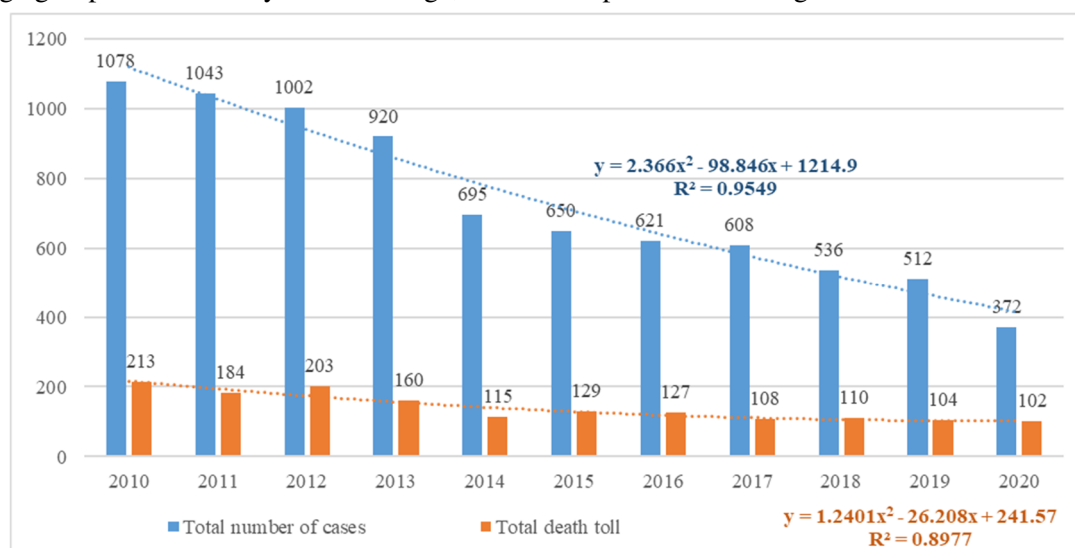


Fig. 1. The number of cases of MN of the lip and deaths from this pathology, Ukraine, 2010–2020. In 2013, the statistics did not include the Luhansk region's and Sevastopol's data. Since 2014, it does not include the data of Donetsk, Luhansk regions, the Autonomous Republic of Crimea and Sevastopol.

Notes: R2 is an approximation ratio; y is the trend line equation, which is a formula that describes the trend line and its correspondence to the data points.

The analysis of trends in the incidence of MN of the lip in Ukraine over the past 10 years showed a gradual decrease in the number of detected cases and the rate per 100 000 of the population (Fig. 2). During the study period, the incidence of lip cancer significantly ($p < 0.01$) decreased from 2.3 ‰ up to 1.3 ‰ (by 43.5 %) in men and from 0.5 ‰ up to 0.3 ‰ (by 40.0 %) in women.

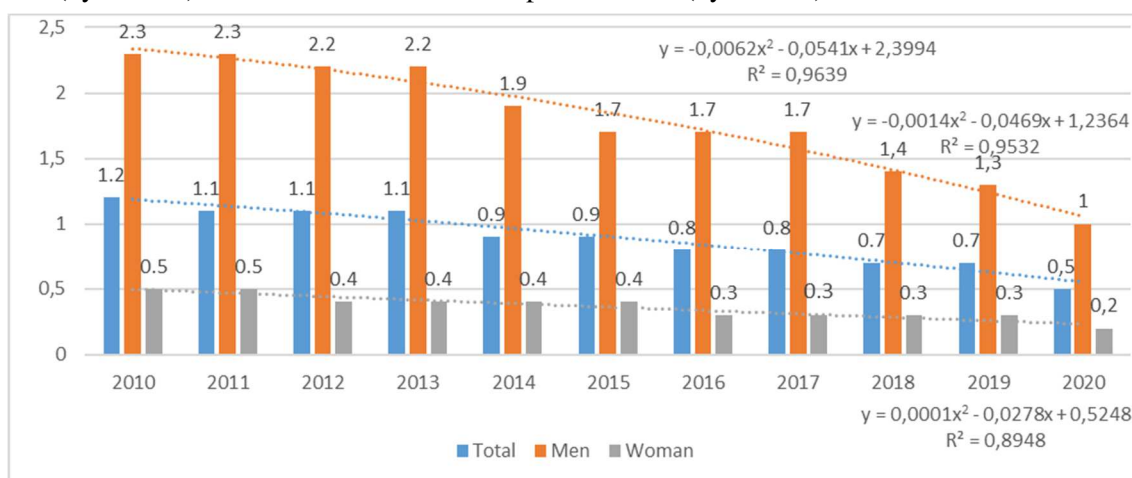


Fig. 2. Dynamics of incidence of MN of the lip in 2010–2020, Ukraine, standardized index per 100 000 of the population (world standard).

Notes: R2 is an approximation ratio; y – the trend line equation, which is a formula that describes the trend line and its correspondence to the data points.

According to the results of comparative analysis, a decrease in the mortality rate of the population of Ukraine from MN of the lip was registered. The value of the mortality rate for the study period decreased from 0.5 for men and 0.1 for women to 0.3 and 0.04 per 100 000 of the population, respectively ($p < 0.01$).

The level of incidence of MN of the lip in the regions of Ukraine has a high variability (table 1). According to the results of the comparative analysis of the morbidity level for 2019, the highest values per 100 000 of the population were established in Kirovohrad (1.7) and Mykolayiv, Kherson, Khmelnytskyi and Cherkasy regions (1.3). Comparing these values to the indices of 2010 indicates a consistently higher incidence of MN of the lip in these regions. In Kirovohrad and Cherkasy regions, the decline in the male population was provided by an increase in the incidence of females. The most significant decrease in the incidence of MN of the lip (by 67–78 %) was registered in Volyn, Zhytomyr, Odesa, Ternopil and Chernivtsi regions. The lowest incidence during the study period was registered in Kyiv (0.1).

The reduction in the number of MN of the lip can be due to several reasons, including easy access for examination, improvement of diagnostic equipment, and more frequent use of cosmetic procedures on the face. Methods of diagnosis and treatment of precancerous diseases of the red border of the lip are being improved. Timely diagnosis and treatment of these diseases prevent MN development.

In a comparative analysis of the distribution of patients with MN of the lip depending on the stage of the disease detection, the data were distributed as follows. So, in 2019, the disease was detected at stages I–II in 90.3 % of patients, and in 2020 – in 83.9 %. Respectively, in 2019, this index at stages III–IV was 8.5 %, and in 2020 – 14.6 %. This indicates that despite the decrease in the absolute number of patients with MN of the lip, the severity of the disease increases in a certain way (Table 1).

Table 1

Incidence of MN of lip and oral cavity in 2010 and 2019, standardized rate per 100 000 of the population (world standard)

Administrative territory	MN of the lip (C00)						MN of the oral cavity (C01–C08)					
	2010			2019			2010			2019		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Ukraine	1.2	2.3	0.5	0.7	1.3	0.3	3.6	6.9	1.2	3.9	7.1	1.4
Crimea	1.8	3.5	0.8				4.3	8.3	1.5			
Vinnitsia region	1.2	2.6	0.4	0.8	1.9	0.1	3.7	7.5	0.9	4.4	9.0	0.8
Volyn region	1.5	3.5	0.4	0.5	1.0	0.2	3.6	7.3	0.8	3.2	5.9	1.1
Dnipropetrovsk region	1.1	2.4	0.3	0.5	0.9	0.3	2.7	5.3	1.0	3.7	6.4	1.7
Donetsk region	0.6	1.1	0.4				3.0	5.8	1.1			
Zhytomyr region	1.6	2.8	0.8	0.5	0.9	0.3	3.6	6.7	1.4	4.9	9.6	1.3
Zakarpattia region	1.1	2.4	0.2	0.5	1.2	0.1	4.1	8.2	0.9	4.2	8.5	0.8
Zaporizhzhia region	1.4	2.6	0.7	0.6	1.2	0.2	4.1	7.5	1.6	3.3	6.0	1.4
Ivano-Frankivsk region	0.8	1.4	0.5	0.6	1.2	0.2	2.9	6.3	0.4	2.5	4.7	0.7
Kyiv region	1.1	2.1	0.5	0.5	1.0	0.2	4.6	9.2	1.2	4.1	7.2	1.8
Kirovohrad region	1.7	3.8	0.4	1.7	3.0	1.0	4.1	8.9	0.8	3.5	6.5	1.4
Luhansk region	0.9	2.2	0.3				3.0	5.7	0.9			
Lviv region	0.9	1.8	0.3	0.5	0.8	0.3	3.2	6.1	0.9	3.8	7.4	0.9
Mykolayiv region	1.5	2.6	0.9	1.3	2.0	0.9	3.8	7.1	1.5	3.7	6.2	1.9
Odesa region	1.6	2.7	0.8	0.5	1.0	0.2	4.6	8.8	1.4	4.3	7.9	1.7
Poltava region	1.2	2.3	0.4	0.7	1.4	0.2	4.1	7.9	1.3	3.6	6.6	1.5
Rivne region	0.9	1.9	0.2	0.6	1.4	0.2	3.9	6.8	1.5	3.6	7.5	0.6
Sumy region	1.5	3.2	0.6	0.7	1.1	0.5	4.0	7.0	1.7	4.0	7.0	1.8
Ternopil region	2.1	4.0	0.9	0.6	1.6	0.1	2.9	6.2	0.4	5.0	10.0	0.9
Kharkiv region	1.0	2.0	0.3	0.5	0.9	0.3	4.1	7.2	2.0	4.1	7.0	2.0
Kherson region	1.5	3.1	0.6	1.3	2.5	0.5	3.7	7.6	1.1	4.3	7.7	1.9
Khmelnyskyi region	1.7	3.4	0.7	1.3	2.7	0.5	4.1	8.1	1.1	3.7	7.5	0.7
Cherkasy region	1.5	3.3	0.4	1.3	2.0	0.8	4.2	8.3	1.1	4.5	8.1	1.6
Chernivtsi region	1.9	3.1	1.1	0.4	0.6	0.3	2.3	4.2	0.9	2.7	4.4	1.4
Chernihiv region	1.2	2.6	0.5	0.8	1.5	0.3	3.6	6.9	1.2	4.5	8.8	1.2
Kyiv	0.2	0.3	0.1	0.1	0.3	0.0	3.4	6.2	1.4	3.6	6.1	1.7
Sevastopol	0.8	1.8	0.2				3.3	5.4	1.8			

An analysis of the incidence of **MN of the oral cavity (C01–C08)** in Ukraine: more than 2,200 new diseases are detected annually, of which about 1,700 in men and 500 – in women (Fig. 3). This pathology is 2.6 % of the nosological structure of the MN of the oral cavity among men and by its specific weight is among the 12 most common neoplasms in the male population of Ukraine. In women, MN of the oral cavity accounts for 0.6–0.7 % of all cancers, which corresponds to 21 ranking places in the structure of cancer incidence. The incidence of MN of the oral cavity reaches peak values in the male population of Ukraine aged 55–74 years. In women, the highest age rates are registered in 55+ years.

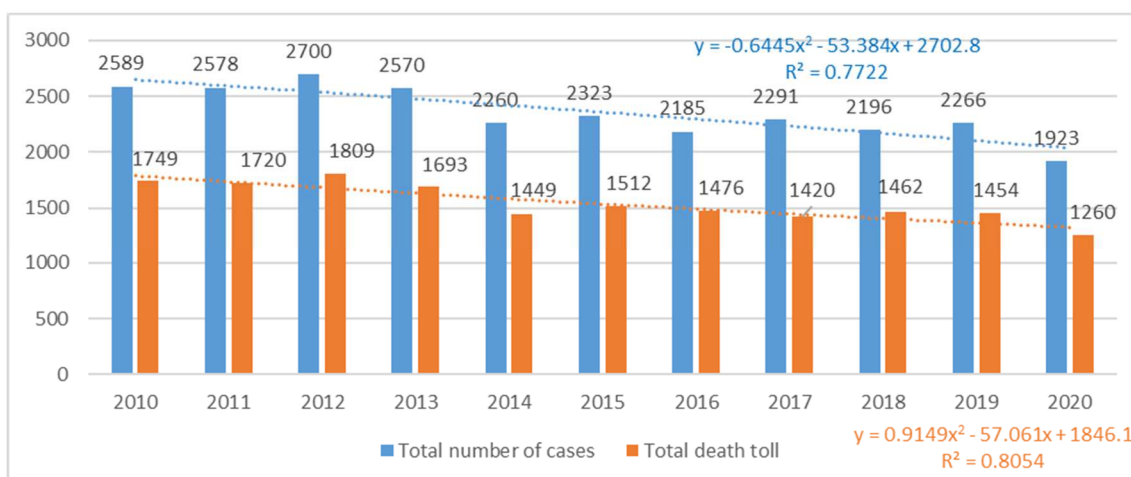


Fig. 3. The number of cases and deaths from MN of the oral cavity. Ukraine. 2010–2020. In 2013, the statistics did not include the Luhansk region's and Sevastopol's data. Since 2014, it does not include the data of Donetsk, Luhansk regions, the Autonomous Republic of Crimea and Sevastopol.

Notes: R2 is an approximation ratio; y – the trend line equation, which is a formula that describes the trend line and its correspondence to the data points.

The incidence rate of MN of the oral cavity in men in Ukraine is by 5.0–5.8 times higher than in women. During the study interval, there were fluctuations in the incidence of MN of the oral cavity in the male population of Ukraine: an increase ($p < 0.05$) of 11.5 % from 2010 to 2015, followed by a 9.0 % decrease (Fig. 4). In women, a slow trend toward the incidence increase was registered ($p > 0.05$).

The analysis of the distribution of patients with MN of the oral cavity depending on the stage showed that in 2019 the disease in stages I–II was detected in 37.8 % of patients, and in 2020 – in 31.0 %. In 2019, at stages III–IV, this index amounted to 53.5 %, and in 2020 – 58.7 %, which indicates a specific decrease in the severity of the disease.

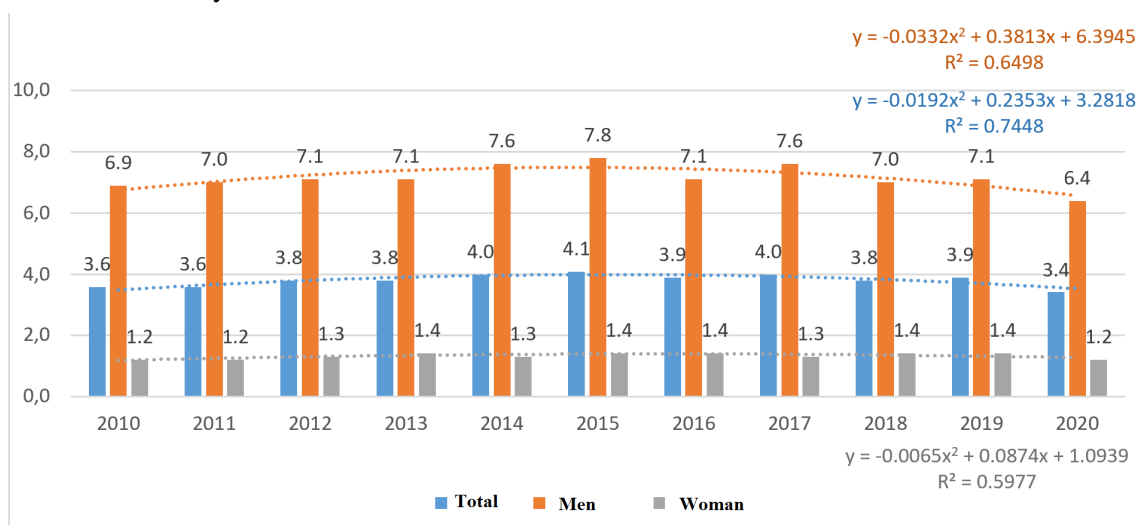


Fig. 4. Dynamics of incidence of MN of the oral cavity in 2010–2020. Ukraine, standardized index per 100 000 of the population (world standard).

Notes: R2 is an approximation ratio; y – is the trend line equation, which is a formula that describes the trend line and its correspondence to the data points.

The mortality rate from MN of the oral cavity in Ukraine during 2010–2019 did not change, remaining at 4.9–5.0 per 100 000 of the population for men and 0.6 for women.

The analysis of morbidity and mortality for MN of the lip and oral cavity in the population of different regions of Ukraine was carried out. In 2019, the values of morbidity rates per 100 000 of the population of MN of the oral cavity in the regions of Ukraine differed. Low rates were registered in Ivano-Frankivsk (2.5) and Chernivtsi regions (2.7) and high – in Zhytomyr (4.9) and Ternopil (5.0) mainly due to differences in the level of male morbidity.

A comparative analysis of the incidence of MN of the oral cavity per 100 000 among women and men in different regions of Ukraine was carried out. The highest rates among the male population were registered in Vinnytsia (9.0), Zhytomyr (9.6), Ternopil (10.0), Cherkasy (8.1) and Chernihiv (8.8) regions.

The highest levels of female morbidity were in Kyiv, Mykolaiv, Sumy, Kharkiv, and Kherson regions and the Kyiv city (1.7–2.0 per 100,000 population).

Comparative analysis of the incidence of MN of the oral cavity over the past 10 years did not reveal significant changes, and the standardized index ranged from 3.6 (2010) to 4.1 (2015). The increase in the incidence of MN of the oral cavity was due to the high incidence among the male population.

The incidence rate of men and women in such regions as Vinnytsia, Zakarpattia, Rivne, Ternopil and Khmelnytskyi differed by 10.6–12.5 times. This was mainly due to the relatively low incidence of the female population in these regions: 0.6–0.9 per 100 000 of the population, with the average Ukrainian indicator of 1.4.

Although since 2014, the NCRU statistics are presented without taking into account the data of Donetsk, Luhansk regions, Autonomous Republic of Crimea and Sevastopol, the decrease in the incidence of MN of the lip cannot be attributed primarily to the population decline in Ukraine due to the occupation of these regions. This is evidenced by indices calculated relative to the size of the observed population, which decrease occurred in subsequent years. Some impact on the index decreasing is possible only due to the loss of data from the Autonomous Republic of Crimea, where, as in other southern regions, the incidence of MN of the lip was among the highest in Ukraine, particularly in men. The incidence of MN of the oral cavity after 2014, on the contrary, increased in 2014–2017, despite the decrease in the number of cases detected in this period.

Thus, the dynamics of the cancer epidemiology process in MN of the lip and oral cavity in Ukraine in the last 10 years is characterized by different trends.

To be able to compare the obtained NCRU revised rates for 2019 with the projected values for 2020, obtained by IARC based on NCRU data for 2003–2012, we performed a calculation of a generalized standardized rate of morbidity and mortality for both pathologies (C00–C08) (Table 2).

Table 2

Predicted and recorded rates of MN of the lip and oral cavity morbidity and mortality (C00–C08), Ukraine

	Quantity	Standard index*	Error	Quantity **	Standard index	Error
IARC	2008–2012 (registered)			2020 (predicted)		
Morbidity rate, men	14134	9.4	0.1	3077	9.9	-
Morbidity rate, women	3971	1.5	0.0	907	1.8	-
Mortality rate, men	-	-	-	1720	5.5	-
Mortality rate, women	-	-	-	337	0.6	-
NCRU	2010 (registered)			2019 (registered)		
Morbidity rate, men	2791	9.3	0.2	2092	8.4	0.2
Morbidity rate, women	876	1.7	0.1	686	1.7	0.1
Mortality rate, men	1649	5.5	0.1	1284	5.2	0.1
Mortality rate, women	313	0.6	0.0	274	0.7	0.0

Notes: *Standardized index per 100 000 of the population (world standard). **The number of new cases and deaths predicted for 2020 in the table is calculated by the IARC for the entire estimated population of Ukraine and the occupied regions. Therefore, it is not comparable to the corresponding number of cases registered with the NCRU.

The analysis of the obtained data shows that according to IARC calculations, the total incidence of MN of the lip and oral cavity in Ukraine should increase by 2020 in both men and women. A comparison of registered and forecast rates shows that the values registered in Ukraine are very close to those predicted for women and differ significantly for men. At the same time, the opposite tendency of decrease in the level of male morbidity on the specified pathologies is observed. A comparison of the NCRU indices in the dynamics indicates a significant ($p < 0.05$) decrease in the level of both morbidity (by 9.7 %) and mortality (by 5.5 %) from the combined number of both studied pathologies in the male population of Ukraine. This can be considered a result of the predominant effect of reducing the incidence of MN of the lips and the constant incidence of women – due to a slight increase in the incidence of MN of the oral cavity.

A comparison of the structure of cancer morbidity and mortality in Ukraine in 2019 and predicted by the IARC, in particular, for the countries of Central and Eastern Europe (CEE) for 2020, showed that the share of MN of the lip and oral cavity registered by the NCRU as a whole (C00–C08) as in men (3.2 %) and women (0.9 %) is close to that in the CEE countries (3.3 % and 1.2 %, respectively). However, the contribution of these diseases to the structure of male cancer mortality in Ukraine (3.7 %) is significantly

higher than expected for CEE countries (2.8 %), although the share of these diseases in the structure of female mortality does not differ (1.0 % in Ukraine vs 1.1 % in CEE countries).

The IARC 2020 review of global trends in the incidence of MN of the lip and oral cavity states that the worldwide incidence of lip cancer (C00) in populations of both sexes continues to decline. The incidence of oral cancer (C00–C06) in men is also reduced, but in some populations, their growth was observed in women [11]. Such conclusions were made based on data from monitoring the global cancer epidemiology process performed by IARC within the CI5 project during 1998–2012 [8].

Analysis of the incidence of MN of the lip and oral cavity is necessary to establish the dynamics of the disease and, in the future, take the measures needed to prevent and reduce the incidence. Statistics show the need to improve the system of care for cancer patients, review the existing and create a new regulatory framework, provide institutions with a sufficient number of specialists, increase the number of scientific studies in the field of oncology, the need for annual preventive examinations [6], etc. The importance of the dentist's role in the early detection of oral hypertension has been proven [1–4].

Conclusions

1. MN of the lips and oral cavity is an urgent problem in dentistry and general medicine. In the structure of oncological morbidity, the MN of the lips is 0.5 %, and the MN of the oral cavity is 0.6–0.7 %, corresponding to the 27th and 21st place among all oncological diseases, respectively.

2. Over the last decade, there has been a probable decrease in the incidence of lip cancer: in 2019, the standardized index was 0.7 per 100 000 of the population compared to 1.2 in 2010. At the same time, a probable increase in MN of the oral cavity was registered, especially in males.

3. Statistics indicate the need for annual preventive examinations of the oral cavity to prevent an increase in the incidence of cancer.

4. The statistical analysis results indicate the need to improve the medical care system for cancer patients at all stages. This requires certain management decisions, revision of the existing and creation of a new regulatory framework, providing institutions with sufficient specialists, increasing studies in the field of oncology, etc.

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