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PECULIARITIES OF THE DISEASE AND PREVALENCE OF CHRONIC CYSTITIS AMONG THE FEMALE POPULATION OF UKRAINE IN THE REGIONAL ASPECT

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Ключевые слова: женщины, хронический цистит, заболеваемость, распространенность

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Abstract. Peculiarities of the disease and prevalence of chronic cystitis among the female population of Ukraine in the regional aspect. Saidakova N.O., Stus V.P., Havva N.V., Grodzinsky V.I. The study uses data from state and industry official statistics for 2008-2017. Absolute and relative indicators of morbidity and prevalence of chronic cystitis among the female population of Ukraine, its regions and areas were analyzed taking into account two five-year periods for comparative assessment of the nature and intensity of dynamic processes. It is revealed that the number of patients with chronic cystitis (CC) registered in Ukraine is at the expense of women, which are 3-3.5 times more in number than men, with their characteristic more intensive growth (for 10 years by 3.6% against 0.4% among the adult population in the country). The first three places in the structure belong to the Southeastern region, Kyiv, Western region, the next – Central, Southern, Northeastern regions. Levels of the prevalence of the disease among women (100 thousand) are higher than the average in Ukraine and is revealed that the number of patients with chronic cystitis (0.8%, 2.1% and 2.8%, respectively, in the first, second periods and 10 years to 15112 in 2017) is also formed by this category (women's growth was 3.4%, 12.4%, and 5.0%, respectively, to 11.295). A similar situation was also identified in the analysis of the level of morbidity (per 100 thousand). In Ukraine, its growth rate for the last five years was 9.6% against 1.8% for the previous year, for 10 years – 11.9%, and the value reached 43.4 in 2017 against 38.8 in 2008. Among women, its levels are higher than the average in Ukraine (in 2017 – 59.2 against 56.1 in 2008), and the increase was more intense (by 6.2% and 11.3% over the periods; for 10 years – by 11.9%).

Urinary tract infections (UTIs) are known to be among the most common diseases among women. The well-known multifaceted leading factors of its development determine the sphere of interest in the problematic issues of providing medical care to this category of sick specialists of different specialties.

Despite the fact that the largest share in the structure falls on acute cystitis, the is chronic frequency of visits and hospitalizations [2, 7, 9, 11, 12, 13]. Against the background of sufficiently studied pathogenesis and the possibility of diagnosis, for now the focus is on treatment. Given the recommendations in the protocols, antibiotics are recognized as therapy [3, 7, 12]. The complexity of their choice is due to the growth of resistant forms to pathogens, as well as intolerance of certain of them and the cost of treatment [1, 2, 3, 4].

At the same time, there is a need to know the real situation of the incidence and prevalence of chronic cystitis (CC) among women in Ukraine in order to focus efforts to prevent its development, involving objective information, taking into account regional specifics.

The aim of the work – to conduct a comparative analysis of the dynamics of the incidence and prevalence of chronic cystitis among the female adult population of Ukraine in the regional aspect.

MATERIALS AND METHODS OF RESEARCH

In the process of studying the relevant indicators, it was confirmed that among the total number of patients with CC, women predominate, 3 to 3.5 times more than men (Fig. 1).
The feature is a characteristic of all regions, as can be seen from the Table. 1. It is inherent in each area in which the difference is larger (2-4 times). Comparative analysis of information presented in Fig. 1 and Table 1 clearly shows the formation of patients in Ukraine as a whole according to their dynamics among women. Thus, their increase for the first period (2008-2012) by 3.6% is due to an increase in the latter by 6.2%; in 2012 there were 67,295 and 51,370, respectively. Over the next five years, the decrease was by 3.7% and 2.1%, respectively, among women to 65,239 and 50,290 patients in 2017. As a result, over 10 years, the increase in women with CC was 3.9% compared to 0.4% in Ukraine as a whole. Under such conditions, the structure of their distribution by regions is identical: the first three places belonged to the South-East, Kyiv, Western region, the next – Central, South and North-East. Due to the annual variability of the data, the average values were calculated to identify clear dynamics of changes by the regions (Table 2).

**Table 1**

| Regions          | 2008       | 2009      | 2010      | 2011      | 2012      | 2013      | 2014      | 2015      | 2016      | 2017      |
|------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                  | abs. %     | abs. %    | abs. %    | abs. %    | abs. %    | abs. %    | abs. %    | abs. %    | abs. %    | abs. %    |
| Western          | 8674       | 9320      | 9723      | 9968      | 8906      | 8960      | 8602      | 8082      | 8040      | 8314      |
|                  | 18.0       | 18.4      | 17.4      | 18.9      | 17.1      | 17.4      | 17.7      | 16.2      | 16.6      | 16.5      |
| Central          | 5066       | 6247      | 5601      | 6045      | 5912      | 5733      | 5869      | 6282      | 6395      | 6298      |
|                  | 10.5       | 12.3      | 10.0      | 11.4      | 11.5      | 11.2      | 12.0      | 12.6      | 13.2      | 12.5      |
| Northeastern     | 2563       | 1876      | 2317      | 3278      | 2977      | 2754      | 3219      | 3498      | 3109      | 3460      |
|                  | 5.3        | 7.7       | 4.1       | 6.2       | 5.8       | 5.4       | 6.6       | 7.0       | 6.4       | 6.9       |
| Southeastern     | 16239      | 15320     | 20679     | 16155     | 15019     | 15810     | 13475     | 14529     | 13156     | 13619     |
|                  | 33.6       | 30.2      | 37.0      | 30.6      | 29.2      | 30.8      | 27.8      | 29.2      | 27.2      | 27.0      |
| Southern         | 4346       | 4766      | 4604      | 4511      | 5288      | 5578      | 5217      | 5466      | 6372      | 7423      |
|                  | 9.0        | 9.4       | 8.2       | 8.5       | 10.3      | 10.9      | 10.7      | 11.0      | 13.2      | 14.8      |
| Kyiv             | 11497      | 13362     | 12963     | 12840     | 13368     | 12526     | 12220     | 11961     | 11325     | 11176     |
|                  | 23.8       | 26.0      | 23.2      | 24.3      | 24.8      | 24.4      | 25.1      | 24.0      | 23.4      | 22.2      |
| Ukraine          | 48385      | 50891     | 55887     | 52797     | 51370     | 51361     | 48602     | 49818     | 48397     | 50290     |
|                  | 100.0      | 100.0     | 100.0     | 100.0     | 100.0     | 100.0     | 100.0     | 100.0     | 100.0     | 100.0     |
Regional dynamics of the number of registered women with chronic cystitis by study periods (M±m)

| Regions      | I period       | II period      |
|--------------|----------------|----------------|
| Western      | 9352±47.0      | 8400±31.0*     |
| Central      | 5775±37.0      | 6115±25.6*     |
| Northeastern | 2606±44.0      | 3208±19.8*     |
| Southeastern | 16665±186      | 14118±87.0*    |
| Southern     | 4714±29.0      | 6011±73.0*     |
| Kyiv         | 12806±62.0     | 11842±27.0*    |
| Ukraine      | 51829±223      | 49694±99.0*    |

Notes: * – the difference is significant between periods; p<0.05.

There was a significant increase in the contingent in the Central, Northeastern and Southern regions with a reverse character in the Western, Southeastern and in the capital.

**RESULTS AND DISCUSSION**

The results of the study of the prevalence of pathology on indicators calculated per 100 thousand of the relevant population confirmed the similarity of their dynamics with absolute values against the background of significantly higher levels (2-2.5 times) among women than the average Ukrainian. In particular, over 10 years it has increased in Ukraine as a whole by 9.3% (from 171.5 in 2008 to 187.5 in 2017), among women by 13.5% (from 232.2 to 263.6 respectively). The difference was manifested by the fact that in the last five years, despite the territorial transformations in the country, the prevalence continued to grow, although with a smaller increase (3.4% vs. 4.7% in the previous) with a more intensive process among women (5.4% vs. 1.0%, respectively). That is, another confirmation of the determining influence of female patients on the general nature of changes in Ukraine as a whole was obtained. The calculated average values allowed to reveal the basic, typical sign of the phenomenon (Table 3). As can be seen from Table 3, a significant increase in the prevalence of CC among women in the country (from 233.5±0.9 to 255.1±1.1 by periods) was due to four regions (Central, Northeastern, Southeastern, Southern). Only in the Western region and the city of Kyiv there was a tendency to decrease.

Regional dynamics of prevalence levels of women with chronic cystitis by study periods (per 100,000 corresponding population) M±m

| Regions      | I period       | II period      |
|--------------|----------------|----------------|
| Western      | 201.1±3.4      | 192.0±5.8      |
| Central      | 163.2±2.1      | 189.0±0.8*     |
| Northeastern | 169.0±3.2      | 180.0±1.3*     |
| Southeastern | 192.3±1.4      | 206.5±1.0*     |
| Southern     | 222.4±3.0      | 260.5±4.7*     |
| Kyiv         | 921.2±2.1      | 918.7±3.2      |
| Ukraine      | 233.5±0.9      | 255.1±1.1*     |

Notes: * – the difference is significant between periods; p<0.05.
It is worth emphasizing the unconditional dependence of regional changes on those inherent in the areas of their composition. Thus, the decrease in the prevalence of chronic cystitis in the Western region is due to a significant decline in five of its seven regions (Volyn – from 141.2±7.5 to 107.1±2.5; Transcarpathian – from 81.2±8.1 to 63.5±5.1, Chernivtsi – from 234.5±19.8 to 181.6±20.0, Ivano-Frankivsk – from 191.8±8.1 to 177.5±5.0; Lviv – from 195.2±5.2 to 180.3±7.4). The increase in the Central region was due to a significant rise in Kyiv (from 3149.0±8.5 to 174.6±14.1); Khmelnytsky (from 116.4±8.5 to 147.2±9.1); in the Northeast – in Poltava (from 130.8±16.8 to 180.7±20.2); in the Southeast – Dnipropetrovsk (from 268.3±10.3 to 299.7±7.5) and Zaporizhzhia (from 83.7±6.9 to 102.4±9.8); in the South – Mykolayiv (from 98.0±3.1 to 240.0±13.1) and Odessa (from 218.0±5.4 to 252.2±9.8). Besides, it is necessary to pay attention to areas with stably high level of prevalence of chronic cystitis: first of all it is Dnipropetrovsk, then Kharkiv, Odessa, Chernivtsi, Nikolaev.

The share of the newly detected cases of CC among all registered during 10 years in Ukraine as a whole was in the range of 21.3-29.0%. At the same time, in contrast to the nature of their changes, in this case a steady increase in those registered for the first time with a more intensive process in the last five years is noteworthy: by 2.1% against 0.8% in the previous ones; in 2012 there were 14.826 of them, in 2017 – 15.112, that is the increase over 10 years was 2.8% (Fig. 2).

![Fig. 2. Dynamics of distribution of patients with the first established chronic cystitis as a whole in Ukraine taking into account sex](image)

Fig. 2 also shows the predominance of women. The regional dynamics of their distribution is given in Table 4.

It also shows that their growth over the years has increased, namely by 3.4% and 12.4% for the first and second periods, respectively, to 11.295 in 2017 against 11.113 in 2012 and 10,751 in 2008; for 10 years – by 5.0%. Against the background of unstable values over the years, the leading first place steadily belonged only to the Southeastern region. Therefore, the average values of data in the regional aspect by periods were used for the analysis (Table 5).

According to this table, it is obvious that the dynamics of changes in the country is formed by female patients with a first diagnosis. Their number has significantly increased in the last five years: 11439±123 against 10929±81 in the past. This feature is characteristic of the Northeastern, Southern regions and the city of Kyiv. It should be noted that in 2017, 60.6% of such cases were concentrated in 9 regions. Thus, in the Western region, Lviv region accounted for 48.0% (1,068 people); in the Central 53.0% (736) – in Vinnysia and Zhytomyr; in the Northeastern 83.6% (2270) – in Dnipropetrovsk, Zaporizhzhia, Kharkiv; in the Southern 92.6% (2335) – in Mykolayiv and Odessa.
Regional dynamics of newly detected cases of chronic cystitis among the female population

| Regions    | 2008 (abs. %) | 2009 (abs. %) | 2010 (abs. %) | 2011 (abs. %) | 2012 (abs. %) | 2013 (abs. %) | 2014 (abs. %) | 2015 (abs. %) | 2016 (abs. %) | 2017 (abs. %) |
|------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Western    | 2728          | 2671          | 2741          | 2686          | 2467          | 1989          | 2346          | 2537          | 2320          | 2220          |
| Central    | 25.4          | 26.8          | 24.6          | 26.3          | 22.2          | 19.8          | 21.8          | 22.0          | 21.0          | 19.6          |
| Northeastern| 1304         | 1704          | 2111          | 1488          | 1599          | 1122          | 1286          | 1504          | 1377          | 1385          |
| Southern   | 12.1          | 15.9          | 18.0          | 13.6          | 14.3          | 11.2          | 12.0          | 13.0          | 12.5          | 12.3          |
| Southeastern| 711           | 618           | 755           | 919           | 800           | 797           | 1014          | 867           | 792           | 807           |
| Kyiv       | 6.6           | 5.7           | 6.7           | 8.4           | 7.2           | 8.0           | 9.4           | 7.5           | 7.2           | 7.1           |
| Ukraine    | 13751         | 13102         | 11488         | 10909         | 11113         | 10050*        | 11130         | 11040         | 11295         |

Note: * – calculation without the Autonomous Republic of Crimea and the city of Sevastopol.

According to the analysis of the incidence of CC in the adult population of Ukraine (per 100 thousand), one can testify to their practical annual growth in both periods. Its rate in the second is ahead of the value of the first (by 9.6% vs. 1.8%), for 10 years – 11.9%. As a result, in 2017 the indicator was 43.4 against 39.5 in 2012 and 38.8 in 2008. According to the dynamics of the morbidity by sex, it was found that it is significantly higher among women than the average Ukrainian. Actually, the general picture of the country is formed behind them. Their growth for 2008-2012 was 6.2%, for 2013-2017 – 11.3% for 10 years – by 11.98%. As a result, the indicators were: in 2017 – 59.2 against 56.1 in 2008. According to their amount, the capital, Southern and Southeastern regions stand out, despite all their variability over the years. On this basis, as a result of interregional analysis, attention is drawn to Lviv, Zhytomyr, Poltava, Dnipropetrovsk, Kharkiv, Mykolayiv regions.

Table 5

Dynamics of the number of newly detected cases of chronic cystitis in women in the regional aspect by study periods (M±m)

| Regions   | I (2008-2012) | II (2013-2017) |
|-----------|---------------|----------------|
| Western   | 2760±14.0     | 2282±16.3*     |
| Central   | 1619±21.0     | 1335±11.5*     |
| Northeastern| 761±45.0     | 855±38.0*      |
| Southeastern| 3432±97.0   | 3270±153.0     |
| Southern  | 1094±18.3     | 1815±194*      |
| Kyiv      | 1272±12.0     | 1380±69*       |
| Ukraine   | 10929±81      | 11439±123*     |

Notes: * – the difference is significant between the indicators by periods; p<0.05.
CONCLUSIONS

1. It was found that Ukraine, its regions and administrative units are characterized by an increase in registered patients with chronic cystitis, in women by 3-3.5 times more than in men; for 2008-2017 the increase was 3.6%. In the structure of their distribution, the first three places belonged to the Southeastern, Kyiv, Western regions, the next – Central, Southeastern and Northeastern.

2. It was established the increase in the prevalence of chronic cystitis (per 100 thousand people) among women by 13.5% over 10 years (from 232.2 to 263.6) against 9.3% in Ukraine (from 218.5 to 243.4 against 38.8 in 2008). Its formation at the expense of women is proved, the indicators among men by 1.8% (from 38.8 to 39.6 in 2017 is ahead of the previous five years (by 9.6% vs. 1.8%; for 10 years – by 11, 9%) and amounted to 43.4 against 38.8 in 2008. Its formation at the expense of women: by 12.4% against 3.4% and 5.0%, respectively, according to 11295. In 2017, 60% of cases were in 9 regions (Lviv, Vinnytsia, Zhytomyr, Dnipropetrovsk, Zaporizhzhia, Kharkiv, Poltava, Mykolayiv, Odessa).

3. It was revealed a steady increase in a number of patients with a first diagnosed, which was more intense over the last five years (by 2.1% vs. 0.8%) and for 10 years by 2.8% to 15,112 in 2017, at the expense of women: by 12.4% against 3.4% and 5.0%, respectively, according to 11295. In 2017, 60% of cases were in 9 regions (Lviv, Vinnytsia, Zhytomyr, Dnipropetrovsk, Zaporizhzhia, Kharkiv, Poltava, Mykolayiv, Odessa).

4. The incidence of chronic cystitis (per 100 thousand) in Ukraine is growing, its rate for 2013-2017 is ahead of the previous five years (by 9.6% vs. 1.8%; for 10 years – by 11, 9%) and amounted to 43.4 against 38.8 in 2008. Its formation at the expense of women: by 12.4% against 3.4% and 5.0%, respectively, according to 11295. In 2017, 60% of cases were in 9 regions (Lviv, Vinnytsia, Zhytomyr, Dnipropetrovsk, Zaporizhzhia, Kharkiv, Poltava, Mykolayiv, Odessa).

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