

/ мин / 1,73м<sup>2</sup>. Каждая группа распределялась на подгруппы в зависимости от типа СД. Результаты исследования показали, что нарушения суточных показателей АД по типам «non-dipper» и «nighl-pcakcr» пациентов при снижении СКФ были от 20% и 7,5% в 1 группе до 60,5% и 27,5% - в 3 группе, соответственно, что свидетельствует о том, что эти типы являются факторами риска развития АГ, а также факторами прогрессирования диабетической болезни почек. Показатели липидограммы достоверно изменялись в сторону гиперлипидемии при снижении СКФ, а сильные и средней силы корреляционные связи общего холестерина, СКФ с показателями СМАД позволяют считать повышенные показатели липидограммы у больных СД маркерами прогрессии диабетической нефропатии.

**Ключевые слова:** липидограмма, артериальное давление, сахарный диабет 1 и 2 типа, скорость клубочковой фильтрации.

Стаття надійшла 15.01.2018 р.

group was divided into subgroups, depending on the type of diabetes. The results of the study showed that the disturbances in the daily BP values for the types "non-dipper" and "nighl-pcakcr" of patients with a decrease of eGFR were from 20% and 7.5% in the 1st group to 60.5% and 27.5% in 3rd group, respectively, indicating that these types are risk factors for the development of hypertension, as well as factors in the progression of diabetic kidney disease. Lipidogram indices changed significantly in the direction of hyperlipidemia with a decrease in eGFR, and strong and medium strengths of the correlation of total cholesterol, eGFR with 24-hour blood pressure monitoring indices allow to consider elevated lipidogram indices in patients with DM markers of the progression of diabetic nephropathy.

**Key words:** lipidogram, blood pressure, type 1 and 2 diabetes mellitus, estimated glomerular filtration rate.

Рецензент Скрипник І.М.

DOI 10.26724/2079-8334-2018-3-65-110-115

UDC 616.831-002

L.V. Pyra, R.V. Svistilnik, Yu.N. Lysytsia, O.V. Yuzvyshyna, O.V. Polishchuk  
Vinnitsia National Pyrogoz Memorial Medical University, Ukraine, Vinnitsa.

## CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS OF SEROUS MENINGITIS IN ADULTS IN THE KHMELNYTSKYI REGION

E-mail: pipa\_l\_v@ukr.net

We analyzed 193 cases of serous meningitis in adults from 2007 to 2017 of which 103 (53,4%) are men and 90 (46,6%) are women. The etiology of the disease was determined by studying the liquor by PCR method. Complications were determined on base of the clinical picture and the method of CT or MRI. The study used an analytical method. The highest seasonal increase of the morbidity is from May to November and it is 71,5% higher than in September (13,9%). The average age of patients was 34,4±14,6 years. Patients who lived in cities (64,2%), in comparison with rural residents (35,8%), were ill. In 100% of the cases the disease began with fever, headache (94,3%), vomiting (80,4%), and seizure (2,6%). The average level of cytosis in liquor was 422,5±291,8 cells with predominance of lymphocytes and the protein level was 0,80±0,28 g/l. The etiological factor was determined in 21 patients (10,9%). Patients are usually ill from 18 to 39 years old (72%). The main pathogens of serous meningitis were herpes virus (42,8%), enterovirus (28,6%) and mycobacterium tuberculosis (19%). In 33,7% of patients there were complications from the central nervous system. The prevalence of serous meningitis among adults was 1,35 per 100,000 population with a male to female ratio of 1,1:1.

**Keywords:** serous meningitis, epidemiology, etiology, adults.

Acute meningitis remains one of the most severe infectious pathologies due to high morbidity, severity of flow, frequent development of neurological complications and death [13]. The constant percentage of disability fluctuates within 25-50% after postponed bacterial meningitis and about 18% after viral meningitis [14]. Unlike bacterial meningitis, which requires rapid administration of antibiotics because of the life threatening of the patient, viral meningitis is often self-limiting without specific treatment [5]. If the clinical diagnosis of meningitis most often does not present a special difficulty for the doctor, then the early establishment of his etiology remains in most cases an unresolved problem [10].

Etiological agents, climatic and epidemiological factors that contribute to their occurrence vary according to country and area. Determining these factors is crucial for monitoring and preventing this problem [6]. Thus, in the study of aseptic meningitis in Romania the most frequent pathogen was the virus of the smallpox, on the other in the place of enterovirus, and in rare cases, the influenza and mumps viruses were detected, although the overall detectivity of the etiological factor was low. In 2011, the prevalence of viral meningitis was 12,9 per 100,000 people [13].

Among the three leaders of the etiological factors of SM in China were enteroviruses, the mumps virus and the Japanese encephalitis virus [14].

In Ukraine, data on the etiology of SM also vary depending on the region. In the Lviv region in 2013-2015 the most common pathogens were herpes virus type 3 and mycobacterium of tuberculosis [16]. At the same time, in the Kharkiv region, enteroviruses were more often detected and secondarily herpes viruses were present [10]. Although polymerase chain reaction (PCR) identifies in most cases the most common SM pathogens, their detection in many studies remains within 30-65% [5].

However, the definition of etiological factors of SM or encephalitis emphasizes the importance of

maintaining active laboratory diagnostic monitoring in selected regions, which can help to make clinical decisions about the choice of etiotropic therapy and prediction of morbidity [1].

**The purpose** of the work was to analyze the etiological structure, epidemiological features, socio-demographic profiles and the nature of the development of complications from the central nervous system (CNS) in serous meningitis in adults of the Khmelnytskyi region for the period of 2007-2017.

**Materials and methods.** We conducted a prospective analysis of 193 cases of SM in adolescents undergoing treatment in the Khmelnytskyi Infectious Disease Hospital (HIDL) for the period from 2007 to 2017, of which 103 men and 90 women. The diagnosis was established on the base of clinical data (presence of meningeal, intoxication and cerebral syndromes) and analysis of spinal fluid (cytosis with predominance of lymphocytes). The etiology of the disease was established by detecting the genetic material of the pathogen in the liquor by the PCR method and in some cases by direct hemagglutination reaction and microagglutination reaction. Complications from the CNS were manifested on the basis of a clinical picture of their development (paresis of extremities, convulsions, etc.) and by additional research methods, mainly CT and MRI. The study used an analytical method.

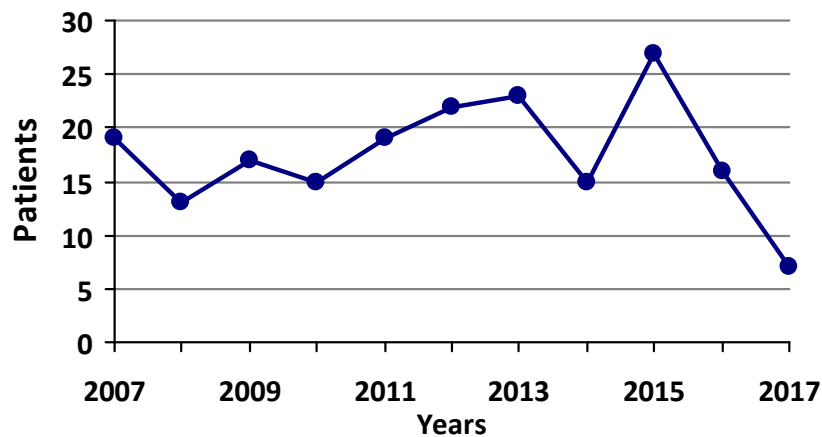


Fig. 1. The dynamics of the incidence of serous meningitis in adults in Khmelnytskyi region during 2007-2017.

Serous meningitis occurs in adults during all seasons however the lowest incidence was observed in the winter (17,6%) and spring (19,7%) periods, increasing in the summer (29,0%) reaching the maximum in the autumn period (33,7%) (Figure 2). The increase of morbidity begins with the month of May which reaches its peak in September (13,9%) and gradually goes down until December of the month. In general the highest seasonal increase in the incidence of serous meningitis in adults is for the period from May to November and accounts for 71,5% of the total annual morbidity.

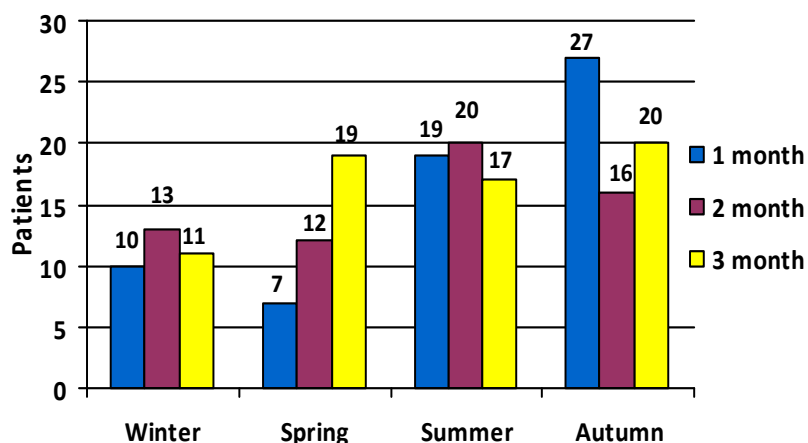


Fig. 2. The seasonal morbidity of serous meningitis in adults in Khmelnytskyi region from 2007 to 2017.

In the West Siberian region of Russia the peak of the disease on enterovirus meningitis in 2015 was in September and October [8]. In one of the Dutch studies in 2016 the highest incidence of enteroviral meningitis in adults ran from June to July of the month [2].

### Results of the study and their discussion.

Analyzing the dynamics of morbidity in the SM in adults, it can be noted its relatively stationary nature with its gradual increase from 2011 to 2013, as shown in figure 1. According to the chart, the peak rates were in 2013 and the largest by 2015, while the highest decline was observed in morbidity in 2017, which can be due in the first place to climatic and socio-demographic factors.

The data which we get is almost the same as the data obtained in other countries which do not vary much from country to country. So in Romania the peak of viral meningitis in 2011 fell to August and September (46,6% of cases) but the largest number was observed in the months of September [13]. In a study by Y. Xie et al. (2012) viral meningitis mostly hit young people and reached their peak from April to August of the month [14].

According to age categories the incidence of SM was distributed as follows: aged 18-39 years old, 139 people (72,0%), 40 persons to 59 years old - 40 (20,7%) and over the age of 60 - 14 (7,3%). The average age of SM patient was  $34,4 \pm 14,6$  years that is mostly young and able-bodied people are ill.

Similar data was obtained in other studies. Thus a study by B. Tilea et al. (2012) found that the main group of patients with SM was young people of middle age of 20 years [13]. Thus according to our observation all age groups suffer from SM but most of all it occurs in the category from 18 to 39 years.

According to the data the number of males who suffered from SM was 103 (53,4%) while females were 90 (46,6%) which corresponded to the ratio of males to females 1.1:1. The clinical picture in most cases was characterized by severe course (78,2%) and in 21,8% of cases, the course of moderate severity. In the overwhelming majority of the diseases meningitis (72,0%) was over, whereas meningoencephalitis was diagnosed in 28,0% of cases. Mostly the number of people living in urban areas was 64,2%, compared with those in rural areas (35,8%) which corresponded to a ratio of 1.8:1.

In 100% of the cases the disease began with fever, headache (94,3%), vomiting (80,4%), seizures (2,6%). The meningeal syndrome was detected in 97,9% of patients, where the neck muscles tended to be rigid, less commonly the symptom of Kernig and hyperesthesia. The development of similar clinical symptoms characteristic of SM is also noted in the studies of other authors [8, 15].

The diagnosis of SM was based on the study of liquor. In the general average, the cytosis was  $422,5 \pm 291,8$  cells with predominance of lymphocytes and the mean protein level in the liquor was  $- 0,80 \pm 0,28$  g/l.

The etiological factor of SM was established in 21 patients (10,9%) (Figure 3) and remains low compared with world data.

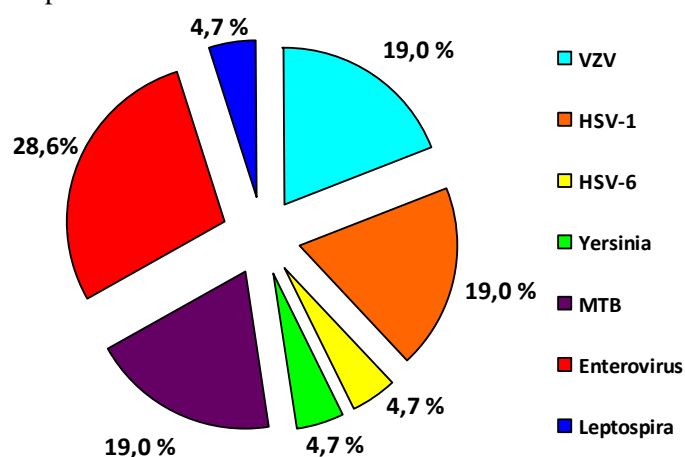


Fig. 3. The etiological structure of serous meningitis in adults in Khmelnytskyi region from 2004-2017.

Figure 3 shows that in the general the main causative agent among the SM in adults is herpes viruses which were determined in 9 (42,8%) cases HSV-1/2 (4 patients) and VZV (4 patients) and HSV-6 (1 patient) were among the herpes viruses. The second ranked place in the etiological structure of SM in adults of the Khmelnytskyi region is enterovirus which was determined in 6 (28,6%) patients, the third place was occupied by the pathogen of tuberculosis, which was detected in 4 (19,0%) patients. In one case the pathogens of iersiniosis and leptospirosis were determined (in 4,7% of cases).

Similar data were obtained in the Lviv region of Ukraine where the herpes virus VZV which was found in 8% of patients and 1% was found to be mycobacterium tuberculosis took the first place in the etiological structure. The detection of the etiological factor was also rather low - 9% [15].

According to published data the detection of SM pathogens is in the range of 40-50% in the world which is significantly higher compared to our data. It can be due to the fact that the study of liquor by PCR method is not investigated for all possible SM pathogens mainly due to technical and economic factors. The etiological factors in the general study in different countries and regions did not differ significantly among themselves and related mainly to the subtypes of herpes viruses.

In one of the studies conducted in the Kharkiv region of Ukraine the detection of the etiological factor in SM in adults reached 49% of which enteroviruses accounted for 53% and herpes viruses 47%. Among the herpes viruses the first place was herpes viruses 1/2 type (HSV-1/2) - 39,1%, the second place was divided into cytomegalovirus (CMV) and herpes virus type 6 (HHV-6) - 21,7% and the third place was occupied by Epstein-Barr virus (EBV) - 17,4% [10]. In a study by I. Jarrin et al. (2016) the etiological factor was established in 46,1% of cases of SM where the most frequent pathogen was also enterovirus (43,4%), while the second place there was herpes virus HSV-2 and the varicella zoster virus (VZV) (16,8% and 14,5% respectively) [5]. Enteroviruses were the predominant factors of SM (32,6%), according to data of MS. Bastos et al. (2016) followed by herpes viruses EBV (22,4%), VZV (20,4%), CMV (18,4%), HSV-1 (4,1%), HSV-2 (4,1 %) and arboviruses (14,3%) [1].

The Korean study showed a significant role of the three herpesviruses in the emergence of SM in adults irrespective of their immunological status. The most common pathogens of SM among herpes virus VZV (17,8%), HSV-2 (3,0%) and HSV-1 (1,5%) [4].

In one German study PCR tests determined the etiological structure of SM pathogens in 68% of cases. Typically the most common pathogen was enterovirus (36%), less common were HSV (15%), VZV (12%) and tick-borne encephalitis virus (5%). In addition it was clinically discovered that inflammatory changes in the liquor were the highest in the case of herpes and the lowest in the case of damage by enterovirus [7]. Such pathogens as arboviruses, chickenpox virus, tick-borne encephalitis virus and some subtypes of herpes viruses (CMV, EBV) are usually not detected screening in Podilskyi region and therefore their frequency and contribution to the structure of SM in children as well as other possible pathogens in Khmelnytskyi region remains unknown.

According to modern literature SM is a limiting condition that requires only symptomatic treatment and usually ends with an increase without the development of significant neurological complications during the course and during the early convalescence. [3].

However some authors believe that the insidiousness of the SM lies in the fact that neurological disorders are formed in the relative ease of the course of the acute period of the disease in the future in the absence of proper catamnestic observation in the period of convalescence [12].

Yes, according to KS. Benschop et al. (2016) in patients with SM in 48,4% of cases there were neurological complications [2].

As it has been determined in some studies that SM caused by herpes viruses is clinically and laboratorial overcome much more difficult than enteroviral SM [7]. Accordingly complications from the central nervous system appear much more and more difficult in patients with herpetic SM in comparison with other pathogens. In a comparative analysis of L. Sanaee et al. (2016) there found that convulsive syndrome was more common in patients with SM due to herpes simplex virus than in patients with enterovirus meningitis (21,1% vs. 1,6%, respectively), change in mental status (46,2% vs. 3,2% respectively) and the development of neurological deficits (44,7% vs. 3,9%) [11].

It has also been found that HSV-1 is the most common cause of encephalitis in adults, whereas the HSV-2 virus mainly causes serous meningitis. Neurological complications are also more commonly observed in patients with HSV-1 (42,9%) than in HSV-2 (8,1%) [9].

In our observation, 65 (33,7%) patients experienced complications of the disease, most of which needed appropriate treatment (Figure 4).

Most often brain edema was observed in 33 patients (50,7%), 10 cases developed convulsive seizures (15,4%), and 8 patients (12,3%) experienced paresis of extremities. It should also be noted that in 5 patients (7,7%) there was a psycho-organic syndrome with significant mental disorders and behavioral disorders requiring skilled care.

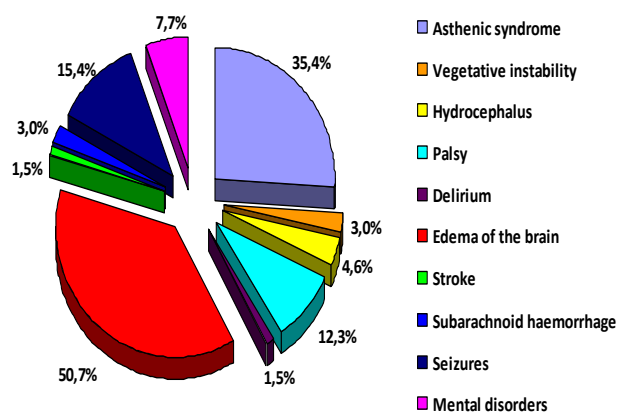


Fig. 4. General complications of serous meningitis in adults from the side of CNS.

Also during the study period 2 men and 1 woman (1,5%) died whose have been diagnosed severe meningo-encephalitis in unidentified etiology with the development of cerebral edema and other systemic complications. In average the duration of treatment for patients with SM was  $24,5 \pm 10,3$  days. This duration could be due to the fact that almost a third of patients (28%) had a history of meningoencephalitis which requires longer treatment as well as the development of severe complications in most patients and a possible prevalence in the etiological structure of the disease of herpes viruses which have a much more severe and prolonged course.

In the studies of enterovirus SM the duration of their inpatient treatment was significantly lower and ranged from 6 to 20 days in average 12,02 days [8]. Taking into account epidemiological data, in the course of the study the prevalence of SM among adults in the Khmelnytskyi region was determined which in total was 1,35 per 100,000 adult population. It can be noted that the obtained indicator is somewhat less than the global index which is probably related to the climatic conditions of the region.

## Conclusion

The annual rate of morbidity in the SM is stationary with the peak in 2013 and 2015 and the decline in 2017. The highest seasonal increase in the incidence of SM in adults occurs between May and November and is 71,5% of the total annual incidence with peak in September (13,9%).

Mostly young people are ill (72% in the age structure), the average age is  $34,4 \pm 14,6$  years in the ratio of men to women 1.1:1. The etiological factor of SM was established in 21 patients (10,9%). Herpes virus (mainly HSV-1/2 and VZV) the main causative agent among adults with SM was detected in 9 (42,8%) cases. The second ranking is occupied by enterovirus which was determined in 6 (28,6%) patients and the third place was occupied by a pathogen which was found in 4 (19,0%) patients.

In most cases the SM ended with complete recovery, however 65 (33,7%) patients had complications of the disease most of which required appropriate treatment (in particular, brain edema was 50,7%, convulsive attacks 15,4%, and paresis extremities in 12,3% of cases). Three patients died (1,5%) due to complications of meningoencephalitis.

In our study the prevalence of SM among adults in the Khmelnytskyi region was 1,35 per 100,000 adult population with a male to female ratio of 1,1:1.

#### References

1. Bastos M S, Lessa N, Naveca F. G, Monte R L, Braga W S, Figueiredo L T M, Ramasawmy R, Mourão M P G. Detection of Herpesvirus, Enterovirus, and Arbovirus infection in patients with suspected central nervous system viral infection in the Western Brazilian Amazon. *J. Med. Virol.* 2016; 86: 1522–1527.
2. Benschop K S, Geeraedts F, Beuvinck B, Spit S A, Fanoy E B, Claas E C, Pas S D, Schuurman R, Verweij J J, Bruisten S M, Wolthers K C, Niesters H G, Koopmans M, Duizer E. Increase in ECHOvirus 6 infections associated with neurological symptoms in the Netherlands, June to August 2016. *Euro Surveill.* 2016; 29(39): 39.
3. Biaukula V L, Tikoduadua L, Azzopardi K, Seduadua A, Temple B, Richmond P, Robins-Browne R, Mulholland E K, Russell F M. Meningitis in children in Fiji: etiology, epidemiology, and neurological sequelae. *International Journal of Infectious Diseases.* 2012; 16: 289–295.
4. Choi R, Kim G M, Jo I J, Sim M S, Song K J, Kim B J, Na D L, Huh H J, Kim J W, Ki C S, Lee N Y. Incidence and clinical features of herpes simplex viruses (1 and 2) and varicella-zoster virus infections in an adult Korean population with aseptic meningitis or encephalitis. *J. Med. Virol.* 2014; 86(6): 957–62.
5. Jarrin I, Sellier P, Lopes A, Morgand M, Makovec T, Delcey V, Champion K, Simoneau G, Green A, Mouly S, Bergmann J-F, Lloret-Linares C. Etiologies and Management of Aseptic Meningitis in Patients Admitted to an Internal Medicine Department. *Medicine.* 2016; 95(2): 2372.
6. Joardar S, Joardar G K, Mandal P K, Mani S. Meningitis in Children: A Study in Medical College & Hospital, Kolkata. *Bangladesh J Child Health.* 2012; 36(1): 20-25.
7. Kaminski M, Grummel V, Hoffmann D, Berthele A, Hemmer B. The spectrum of aseptic central nervous system infections in southern Germany - demographic, clinical and laboratory finding. *Eur J Neurol.* 2017; 24(8):
8. Khokhlova Z A, Gileva R A, Sereda T V, Parshukova E Yu, Zakharova E, Povolotskaya L M, Kolobova N S, Nikolaeva N A. Clinical and epidemiological peculiarities of enterovirus meningitis in the period of seasonal outbreak in 2015. *Journal Infectology.* 2016; 8(3): 83-91.
9. Moon S M, Kim T, Lee E M, Kang J K, Lee S A, Choi S H. Comparison of clinical manifestations, outcomes and cerebrospinal fluid findings between herpes simplex type 1 and type 2 central nervous system infections in adults. *J Med Virol.* 2014; 86(10): 1766-71.
10. Nartov P V. Polymerase chain reaction in diagnosis of acute meningitis of bacterial and viral origin. *International Medical Journal.* 2011; 2: 85-87.
11. Sanaee L, Taljaard M, Karnachow T, Perry J J. Clinical and Laboratory Findings That Differentiate Herpes Simplex Virus Central Nervous System Disease from Enteroviral Meningitis. *Can J Infect Dis Med Microbiol.* 2016; 2016: 3463909.
12. Skripchenko N V, Ivanova M V, Vilnits A A, Skripchenko E Yu. Neuroinfections in children: Tendencies and prospects. *Russian Bulletin of Perinatology and Pediatrics.* 2016; 4: 9-22.
13. Tilea B, Brînzaniuc K, Tilea I. Incidence, epidemiology and etiology of acute meningitis in Mures County – an observational study. *ARS Medica Tomitana.* 2012; 3(70): 116-125.
14. Xie Y, Tan Y, Chongsuvivatwong V, Wu X, Bi F, Hadler S C, Jiraphongsa C, Somsrivichai V, Lin M, Quan Y. A Population-Based Acute Meningitis and Encephalitis Syndromes Surveillance in Guangxi, China, May 2007- June 2012. *PLoS ONE.* 2012; 10(12): 0144366.
15. Zinchuk O M, Orfin A Ja, Prykuda N M, Zadorozhnyi A M, Olenyn M M. Clinical epidemiology aspects of meningitis in Lviv region. *Buk. Med. Herald.* 2016; 20(79): 67-71.

#### Рефераты

**КЛІНІКО-ЕПІДЕМІОЛОГІЧНА  
ХАРАКТЕРИСТИКА СЕРОЗНИХ МЕНІНГІТІВ  
У ДОРОСЛИХ ХМЕЛЬНИЦЬКОЇ ОБЛАСТІ  
(ПОДІЛЬСЬКИЙ РЕГІОН, УКРАЇНА):  
ОДИНАДЦЯТИЛІТНЄ ЕПІДЕМІОЛОГІЧНЕ  
СПОСТЕРЕЖЕННЯ**

**Пыпа Л.В., Свістільник Р.В., Лисица Ю.М., Юзвигина О.В.  
Полищук О.В.**

Нами проведено аналіз 193 випадків серозного менінгіту у дорослих за період з 2007 по 2017 роки, з яких 103 (53,4%) чоловіків і 90 (46,6%) жінок. Етіологію захворювання визначали шляхом дослідження ліквору методом ПЛР. Ускладнення визначалися на підставі клінічної картини і методом КТ або МРТ. При дослідженні

**КЛИНИКО-ЭПИДЕМИОЛОГИЧЕСКАЯ  
ХАРАКТЕРИСТИКА СЕРОЗНЫХ МЕНИНГИТОВ  
У ВЗРОСЛЫХ ХМЕЛЬНИЦКОЙ ОБЛАСТИ  
(ПОДОЛЬСКИЙ РЕГИОН, УКРАИНА):  
ОДИНАДЦАТИЛЕТНЕЕ ЭПИДЕМИОЛОГИЧЕСКОЕ  
НАБЛЮДЕНИЕ**

**Пыпа Л.В., Свистильник Р.В., Лисица Ю.Н.,  
Юзвигина Е.В., Полищук О.В.**

Нами проведен анализ 193 случаев серозного менингита у взрослых за период с 2007 по 2017 годы, из которых 103 (53,4 %) мужчин и 90 (46,6 %) женщин. Этиологию заболевания определяли путем исследования ликвора методом ПЦР. Осложнения определялись на основании клинической картины и методом КТ или МРТ.

використовувався аналітичний метод. Найбільший сезонне зростання захворюваності припадає на період з травня по листопад місяць, і становить 71,5% з піком у вересні (13,9%). Середній вік пацієнтів становив  $34,4 \pm 14,6$  року. Хворіли переважно пацієнти, які проживали у міських поселеннях (64,2%), в порівнянні з жителями сільської місцевості (35,8%). У 100% випадків захворювання починалося з лихоманки, головного болю (94,3%), блювання (80,4%), судом (2,6%). Середній рівень цитоза в лікворі становив  $422,5 \pm 291,8$  клітин з переважанням лімфоцитів, а рівень білка -  $0,80 \pm 0,28$  г / л. Етіологічний фактор був визначений у 21 пацієнтів (10,9%). Хворіють переважно пацієнти з 18 до 39 років (72%). Головними збудниками серозних менингітів були віруси простого герпесу (42,8%), етеровіруси (28,6%) і мікобактерія туберкульозу (19%). У 33,7% пацієнтів спостерігалися ускладнення з боку ЦНС. Поширеність серозного менингіту серед дорослих склало 1,35 на 100 тис населення з співвідношенням між чоловічою і жіночою статтю 1,1: 1.

**Ключові слова:** серозний менингіт, епідеміологія, етіологія, дорослі.

Стаття надійшла 14.03.18 р.

При исследовании использовался аналитический метод. Наибольший сезонный рост заболеваемости приходится на период с мая по ноябрь месяц, и составляет 71,5% с пиком в сентябре (13,9%). Средний возраст пациентов составлял  $34,4 \pm 14,6$  лет. Болели преимущественно пациенты, проживавшие в городах (64,2%), по сравнению с жителями сельской местности (35,8%). В 100% случаев заболевания начиналось с лихорадки, головной боли (94,3%), рвоты (80,4%), судорог (2,6%). Средний уровень цитоза в ликворе составлял  $422,5 \pm 291,8$  клеток с преобладанием лимфоцитов, а уровень белка -  $0,80 \pm 0,28$  г/л. Этиологический фактор был определен у 21 пациента (10,9%). Болеют преимущественно пациенты с 18 до 39 лет (72%). Главными возбудителями серозных менингитов являлись вирусы простого герпеса (42,8%), этеровирусы (28,6%) и микобактерия туберкулеза (19%). В 33,7% пациентов наблюдались осложнения со стороны ЦНС. Распространенность серозного менингита среди взрослых составило 1,35 на 100 тис населения с соотношением между мужским и женским полом 1,1:1.

**Ключевые слова:** серозный менингит, эпидемиология, этиология, взрослые.

Рецензент Крючко Т.А.

DOI 10.26724/2079-8334-2018-3-65-115-118

УДК 616.12-089; 615.036.2

М.В. Починська, М.І. Шевчук  
Харківський національний університет імені В.І. Каразіна, Харків

## КЛАСИ ПУЛЬСОВОГО АРТЕРІАЛЬНОГО ТИСКУ І ЧАСТОТА ПРИЗНАЧЕННЯ ОКРЕМИХ ГРУП КАРДІОЛОГІЧНИХ ПРЕПАРАТІВ У ПАЦІЄНТІВ ДО І В РАННІЙ ПЕРІОД ПІСЛЯ ПОСТІЙНОЇ ЕЛЕКТРОКАРДІОСТИМУЛЯЦІЇ

E-mail: yourzemer@gmail.com

Вивчено частоту призначення окремих груп кардіологічних препаратів залежно від рівня пульсового артеріального тиску (ПАТ) в ранній період після імплантації електрокардіостимуляторів (ЕКС) у 220 пацієнтів (110 чоловіків і 110 жінок) у віці  $70 \pm 9$  років. Після імплантації ЕКС частота призначення антиаритмічних препаратів та блокаторів рецепторів ангіотензину II підвищується тим більше, чим більше вихідний клас ПАТ. У ранній постімплантаційний період необхідне підвищення частоти призначення антикоагулянтів і антиагрегантів у кожному класі ПАТ. Частота призначення сечогінних засобів, антагоністів кальцію та інгібіторів ангіотензинперетворюючого ферменту збільшується з класом ПАТ та не потребує зміни в ранній період після імплантації ЕКС.

**Ключові слова:** електрокардіостимуляція, класи пульсового артеріального тиску, медикаментозна терапія.

*Робота є фрагментом НДР «Терапевтичний супровід пацієнтів з імплантованими електрокардіостимуляторами і кардіоресинхронізуючими пристроями» (державний реєстраційний номер 0115U005080).*

Пульсовий артеріальний тиск (ПАТ), що визначається різницею між систолічним (САТ) і діастолічним артеріальним тиском (ДАТ), залежить від ступеня тонуусу стінок артерій і насосної функції лівого шлуночка (ЛШ). ПАТ поза фізіологічних значень (40-60 мм рт. ст.) підвищує ризик розвитку серцево-судинних ускладнень і загальної смертності [9-11]. Постійна електрокардіостимуляція (ЕКС), що застосовується для лікування пацієнтів з порушеннями ритму і провідності, а також хронічною серцевою недостатністю (ХСН), вимагає модифікації проведеної медикаментозної терапії, яка, в свою чергу, впливає на зміну ПАТ [3,6]. Однак зміни частоти призначення основних груп кардіологічних препаратів в класах ПАТ у пацієнтів в ранній період після імплантації ЕКС в літературі не вивчено.

**Метою** роботи була оцінка частоти призначення основних груп кардіологічних препаратів у пацієнтів в ранній період після імплантації ЕКС в різних класах ПАТ для розробки пропозицій корекції медикаментозної терапії в залежності від класу ПАТ.

**Матеріал і методи дослідження.** На базі відділення ультразвукової та клініко-інструментальної діагностики захворювань внутрішніх органів серцево-судинної системи і мініінвазивних втручань ДУ «Інститут загальної та невідкладної хірургії імені В. Т. Зайцева НАМН України» обстежені 220 пацієнтів, з них 110 чоловіків і 110 жінок, середній вік яких склав  $70 \pm 9$  років. Всім пацієнтам імплантовані ЕКС з 2006 по 2015 роки: SJM Verity DAx XL SR 5156 в