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MEASLES IN HOSPITALIZED ADULTS IN KHARKIV REGION

Yurko K.
Doctor of medical science, Professor, Head of the Department of Infectious Diseases of Kharkiv National Medical University, Ukraine
Mohylenets O.
PhD, Assotiate professor of the Department of Infectious Diseases of Kharkiv National Medical Uiversity, Ukraine
Nartov P.
Doctor of medical science, Professor, Head of the Kharkiv Regional Clinical Infectious Diseases Hospital, Ukraine
Dontsova O.
Student of the 6th course of Kharkiv National Medical University, Ukraine
Merkulova N.
PhD, Assotiate professor of the Department of Infectious Diseases of Kharkiv National Medical University, Ukraine
Ivanova V.
Student of the 6th course of Kharkiv National Medical University, Ukraine
Yekimova N.
Head of the Diagnostics Department of Kharkiv Regional Clinical Infectious Diseases Hospital, Ukraine
Harbuz D.
Doctor of the Diagnostics Department of Kharkiv Regional Clinical Infectious Diseases Hospital, Ukraine

Abstract
Analysis of epidemiolodical, gender-age, clinical and laboratory features of adult measles in Kharkiv region during 2018 outbreak was conducted.

Keywords: measles, adults, epidemiology, vaccination, clinical features, outbreak, Ukraine, Kharkiv.

Measles is one of the easily transmitted vaccine-preventable diseases. Morbidity has a direct connection with vaccination status of population. According to WHO immunization coverage of Ukrainian population with 1st dose of measles containing vaccines has decreased dramatically from 2008, when index was >=90% to 50-79% in 2009-2015 and <50% in 2016 [1].

The last outbreak of measles, which covered almost all countries of the world, is characterized by a significant increase in the proportion of adult population in the structure of the diseased. Thus, according to official statistics, in 2018 in Ukraine, which was the leader among the European countries in the number of measles patients, more than 54000 cases were registered and more than 20000 of them were among adults [2].

The purpose of the work was to study the features of measles outbreak in hospitalized adults in

Kharkiv region in 2018.

Tasks:

1. To study the gender-age and epidemiological features of measles.

2. To investigate the clinical manifestations of measles at the present days.

3. To compare clinical manifestations of the disease in vaccinated and unvaccinated individuals.

Materials and methods. The research was carried out at the Department of Infectious Diseases of Kharkiv National Medical University, which based on Kharkiv Regional Clinical Infectious Diseases Hospital (KhRCIDH).

Analysis of 99 case histories of patients with measles who had been treated at the KhRCIDH in 2018 was performed.

Taking into account that measles situation in Ukraine had been considered as epidemic the diagnosis was established on the basis of clinical and epidemiological data. In those patients who had history of previous vaccination against measles (46, 46%) it was also confirmed by the ELISA method (significant rise in measles IgG antibodies).

The statistical processing of the obtained data was carried out on IBM PC using Excel spreadsheets. The method of variation statistics was used to calculate the Student's T-test and Pearson chi-squared test (x2). Differences were considered as significant at $p<0,5$.

Results.

In the Kharkiv region in 2018, there were registered 627 cases of measles: 316 - in adults and 311 - in children [2]. So, adults accounted for half of the number of all measles patients (Fig. 1) that was not characteristics for previous epidemics - measles considered to be children infection, but coinsides with nowadays tendecy in other regions of Ukraine and other countries [2-4].

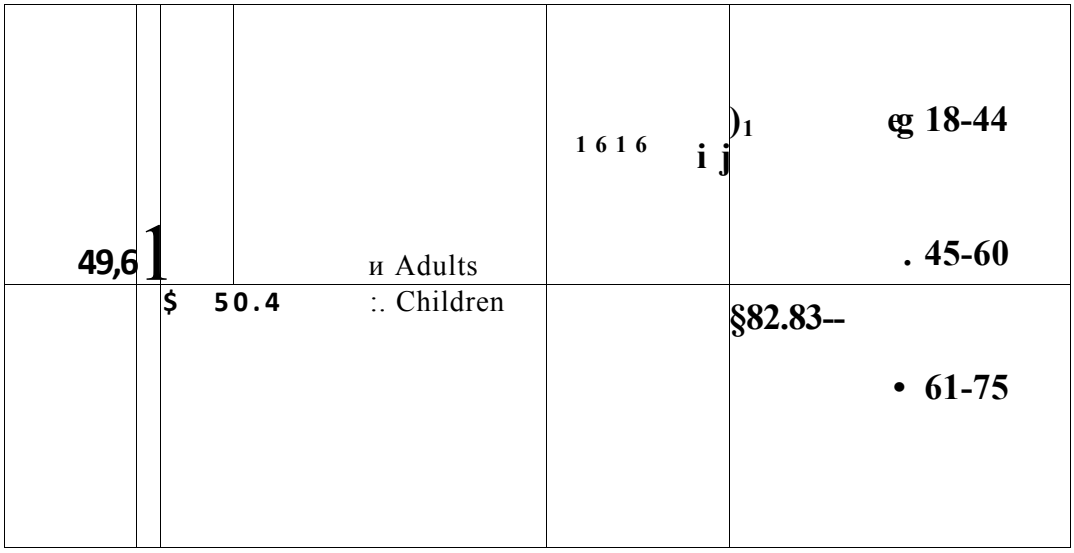

Fig. 1 The number of adults among patients with measles, %

Fig. 2 Distribution of hospitalized patients by age, %

Among hospitalized persons the number of women and men was almost equal (49 and 50 people respectively).

The age of patients varied from 18 to 64 y.o. and in average was 32,76±0,99 years. More than 80% of patients belonged to the age group of 18-44 years that according to the WHO age classification is the young age group. And just 1 patient belonged to the age group of 61-75 years (Fig. 2).

Almost half of hospitalized individuals (46,46%) noticed that they were vaccinated against measles in childhood. 30% pointed on close contact with measles patients as a reason of their disease.

Such a high quantity of previously immunized people among hospitalized adults with measles according to our opinion possibly could be explained by next reasons: on the one hand it could be a bad quantity of vaccines or noncompliance of their storage mode, but on the other hand, and that is more likely, - mutation of the virus on the basement of low collective antimeasles immunity.

Clinical presentation of measles in hospitalized people characterized by presence of intoxication, catarrhal and exanthema syndromes. Description and incidence of the main clinical symptoms is represented in Fig. 3.

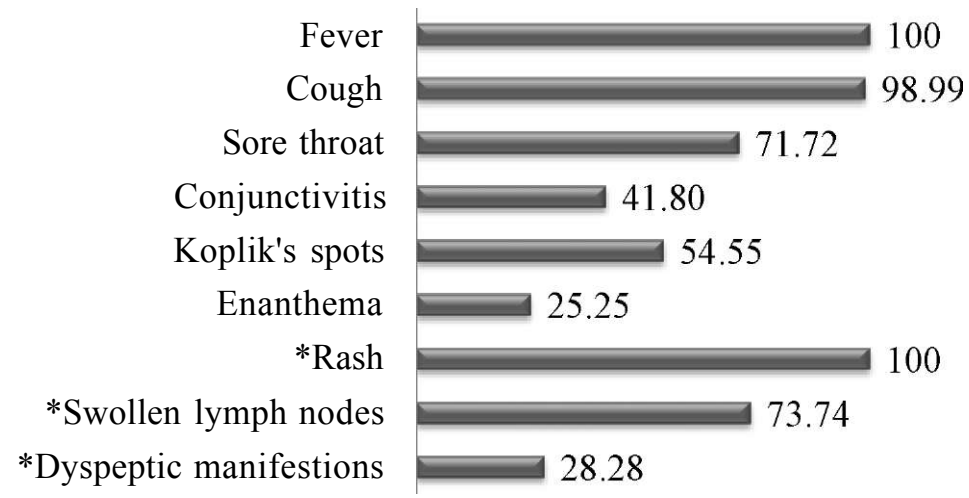

Fig. 3 Incidence of the main clinical symptoms, %

- p<0,5

Disease started from fever, which was observed in 100% of patients, accompanied by a headache and other body aches, malaise; on the average reaches 38,78±1,16°C and lasts 7,15±0,87 days.

98,99% of patients complained on cough (in 90,9% - dry). 71,72% of them had pharyngitis, 48,8% - conjunctivitis, 32,32% - rhinitis. Laryngitis was present just in 6 patients. Koplik's spots were detected in 54,55% of patients, enanthema on soft palatinum - in 25,25%. The average duration of the catarrhal period was 3,98±0,13 days.

Incidence of all symptoms mentioned above in vaccinated and unvaccinated was insignificant (p>0,05).

Maculopapular rash was observed in all patients and appeared on 3,98±0,13 day of the disease; in 53,54% of cases it was abundant, in 15,15% accompanied by itching of the skin. An average duration of exanthema elements appearance was insignificantly (p>0,05) longer in unvaccinated (3,79±0,15 days) than in vaccinated (3,59±0,26 days) persons. Moreover, there was a difference in localization and spreading of the rash in immune and non-immune patients (Table 1).

Table 1

Localisation of rash, depending on vaccination status, %

Status of vaccination / Localisation	Vaccinated patients (n =46)	Unvaccinated patients (n=53)
Face and neck	100	100
Trunk and upper extremities	95,65	98,11
All over the body *	36,96	67,92

* - p<0,5

There was a tendency to noncompleted spreading of the rash. The rash on the face and neck was present in all patients, while trunk and upper extremities localization - insignificantly (p>0,05), - and all over the body localization - significantly (p<0,05) more ofen was characteristic for unvaccinated persons.

According to the case histories data, 73,74% of patients had an enlargement of lymph nodes. In 87,67% of them neck lymph nodes were enlarged, in 58,90% - submandibular, in 41,09% - occipital. Enlargement of occipital lymph nodes was revealed significantly (p<0,5) more often in unvaccinated persons (23 and 7 respectively).

Dyspeptic syndrome (vomiting or diarrhea) was observed in 28 (28,28%) patients, more often (p<0,5) in unvaccinated (21 and 7 individuals respectively).

Clinical blood test mainly (60,60%) characterized by normocytosis, 28,28% of patients had leukopenia, and 11,11% - leukocytosis. The average leukocyte count was 5,89±0,46x10^9/l. 27,27% of patients had an increased alanine aminotransferase level from 64 up to 418 IU/l.

Bacterial complications (pneumonia, sinusitis, otitis media) were observed

in 16,16% of patients with no significant difference between vaccinated and unvaccinated. Fatal outcomes were absent.

Conclusions.

1. The peculiarity of measles outbreak in the Kharkiv region in 2018 was a significant increase in the number of adults among the sick. Most commonly it affected young adults.

2. The main value in clinical diagnosis of measles in the 2018 season, as well as during past outbreaks, had fever, cough, conjunctivitis, maculopapular rash, and Koplik's spots.

3. Difference between the majority of clinical signs in vaccinated and unvaccinated individuals was

insignificant. However, the classic stage of rash with its spreading all over the body, dyspeptic syndrome, enlargement of the occipital lymph nodes were significantly more frequent ($p<0,05$) in patients who had not been vaccinated.

4. The fact that almost the half of the adult patients had anamnestic data about previous vaccination against measles is likely to indicate that age-related immunity tends to decrease and results in necessity to review adult vaccination approaches.

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