



# The scientific method

**№5 (5)/2017**

**VOL.2**

## **“The scientific method”**

(Warszawa, Poland)

ISSN 2708-5341

**The journal is registered and published in Poland**

**It is published 12 times a year.**

**Articles are accepted in Polish, English, Russian, Ukrainian, German,  
French languages for publication.**

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# MEDICAL SCIENCES

## INDIAN MARKET OF MEDICINES IN UKRAINE

Timanyuk I.V.

Malyi V.V.

Bondarieva I.V.

National University of pharmacy  
Ukraine

### Abstract

In the paper the structure of medicinal preparations imported from India (the number of imported trade names, producers, pharmacological groups, and sales volumes in physical and monetary terms) has been analyzed.

**Keywords:** medicinal preparations, import. India.

**I. Relevance.** Ukrainian pharmaceutical market is one of the most dynamic in the conditions of the unstable political situation in Ukraine pharmaceutical market quickly adapted to the new conditions by changing the vector. Thus, due to the deterioration of relations with Russia Ukrainian producers have lost a large enough market for their products. In 2012, exports amounted to almost 250 million UAH, now it is 200 million USD, noted a drop of 20-25%, due to the hostilities in the east. At the same time, producers have been forced to improve the quality of products and increase markets in other countries. Today, Ukraine exports medicines to

50 countries, including EU countries, such as Germany, Poland, Bulgaria, Romania, continued registration in France, Italy and the UK. The largest number of medicines produced in Ukraine are supplied in Uzbekistan (23% of exports), in second place in terms of exports are Kazakhstan and Moldova. In Germany goes 0.1% of exports, Poland – 0.5%, Bulgaria – 0.2% [1, 2].

At the same time, Ukraine be of interest as a sales market. Currently in Ukraine 64% of drugs it is imports. If we consider the geographical structure of the market, the leading position is divided between Germany and India (Fig. 1).

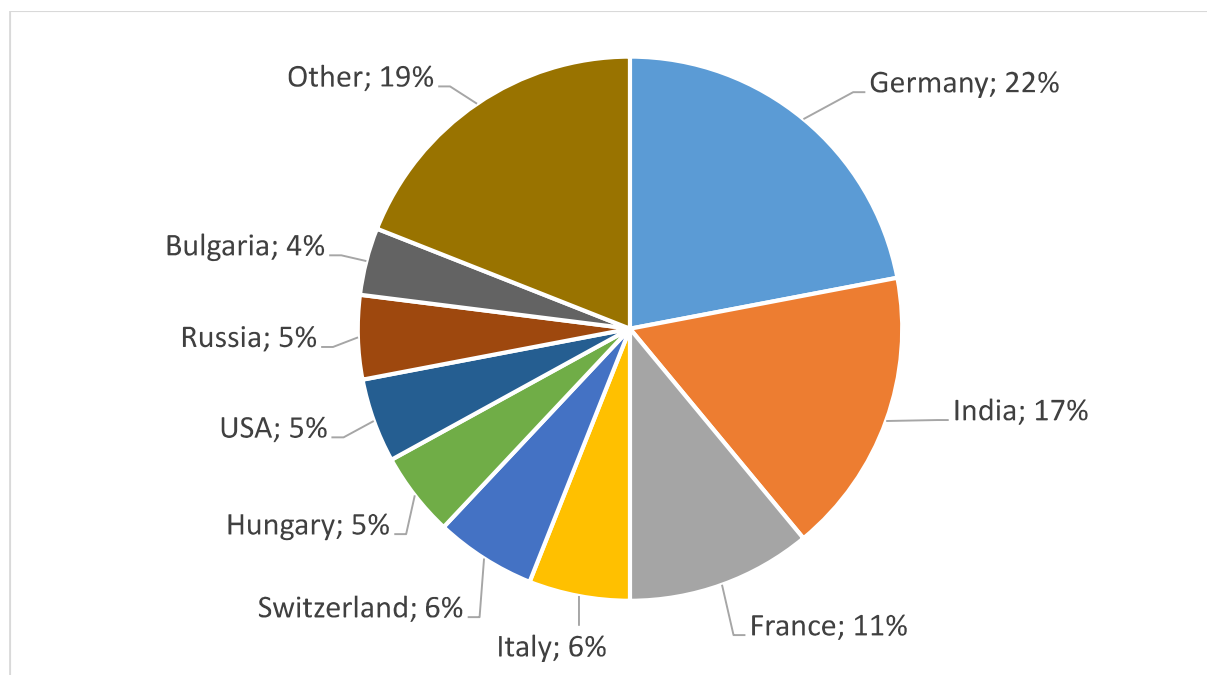


Fig. 1. Geographic structure of imported medicines to Ukraine (in monetary terms)

In the conditions of falling solvency, level of the population of Ukraine the most competitive imported medications become a drugs produced in India. These drugs become the object of our research.

**II. Objective.** The main aim of the work was to identify the structure medicinal preparations imported from India: the number of imported trade names, producers, pharmacological groups, and sales volumes in physical and monetary terms.

**III. Research methods.** As a basic research' methods were chosen: historical, logical, statistical, analytical, graphical and others.

**IV. Unresolved issues earlier.** Conducted scientific studies concerned, in most cases, the Ukrainian pharmaceutical market in general, with the division of the group medicinal preparations. Studied only the structure of imports and exports. More dative analysis of the structure of imported medicines by countries were not previously held. Necessity of such research

lies in the fact that foreign companies wishing to enter the Ukrainian market need information about the existing structure of the import market, with the aim of further finding "market window."

**V. Statement of the base material.** Indian pharmaceutical companies have proved to the world that they are one of the leading producers of medical products in the world. The quality of pharmaceutical products produced in India is improving from year to year. This is due to the fact that India has formed a national

policy in the field of pharmacy and strictly protects its pharmaceutical market. It is expressed primarily in the fact that in India almost no import of drugs, while their exports steadily increasing. One of the exporting countries is Ukraine. As of the 1st quarter 2017 in Ukraine registered 541 brand name medications from India. Analysis of the results of the year 2016 shows that the sales volume of the Indian medicines amounted to more than 32 million packages worth a total of 1.32 billion UAH. (Fig. 2).

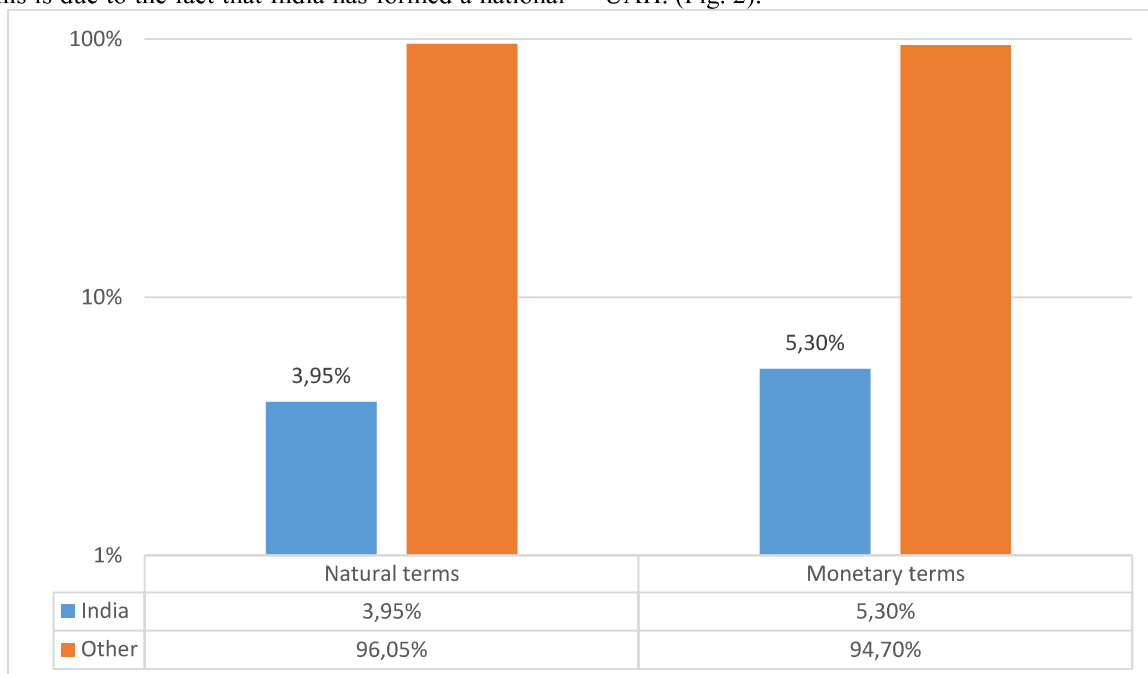


Fig. 2. The sales volume of Indian medication in Ukraine in 2016

It should be noted that Indian medication imported to Ukraine represent all 14 groups of the first level of classification ATC. The most widely represented group J (anti-infectives for systemic use), it has 149 trade names (Fig. 3).

In a more detailed consideration of the group J (antiinfectives for systemic use) it is clear that the bulk

of the 136 medications are drugs belonging to the group J01 (antibacterials for systemic use) (Fig. 4).

The most popular in Ukraine are medication of J01D group, based on the received data was compiled rating of sales of drugs in monetary and natural terms (Table 1).

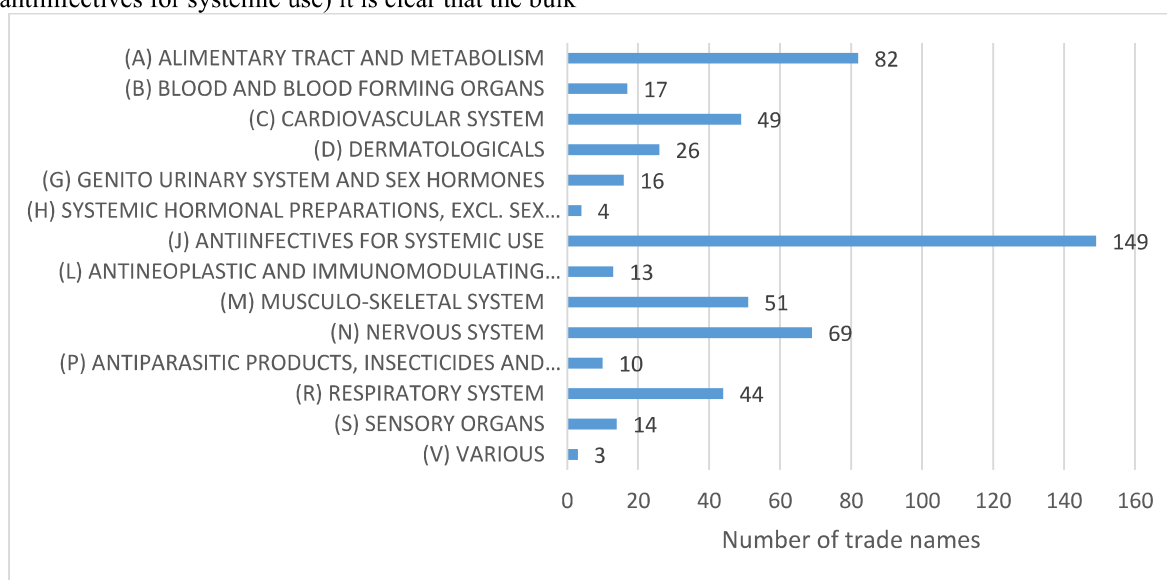


Fig. 3. Import of Indian drugs according to the ATC classification

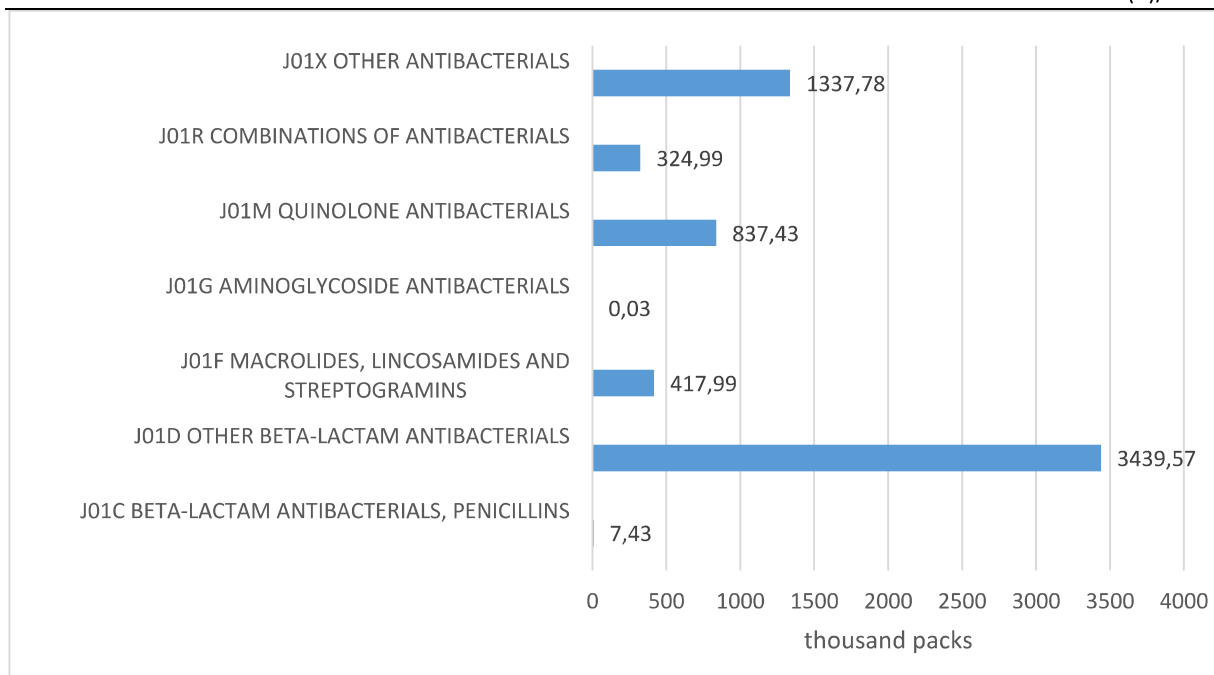


Fig. 4. Sales volumes of J01 Antibacterial drugs for systemic use produced in India

Table 1

**Selling Rating of J01D group of drugs in Ukraine**

Rating	Trade name	Producer	Dosage form	Quantity, pcs.	Sum, thousand. UAH
1	Emceph®	Emcure Pharmaceuticals	powder for solution for injection 1000 mg vial, №1	1 297 464	45 504,90
2	Cefaxone	Lupin	powder for solution for injection 1 g vial, №1	286 182	10 908,63
3	Ceftriaxone	Alembic Ltd	powder for solution for injection 1 g vial, №1	270 121	2 253,44
4	Tulizid	Tulip Lab.	powder for solution for injection 1 g vial, №1	194 637	12 241,93
5	Cefogram®	Orchid Chemicals and Pharmaceuticals	powder for solution for injection 1000 mg vial, №1	95 534	3 529,41
6	Auroxon	Aurobindo Pharma	powder for solution for injection 1000 mg vial, №1	63 602	2 965,90
7	Ixime	Lupin	powder for oral suspension 100 mg /5 ml vial 50 ml, №1	61 835	6 209,06
8	Ceftriaxonum	Lupin	powder for solution for injection 1 g vial, №1	54 872	334,15
9	Abipim®	Abryl Formulations	powder for solution for injection 1000 mg vial, №1	33 672	4 422,47
10	Alcizone	Alembic Ltd	powder for solution for injection 2 g vial, №1	24 756	1 763,50

The first place is occupied the drug Emceph® broad-spectrum antibiotic. First place in the ranking explained by high bioavailability of the drug and its relatively low price, the average price for Ukraine ranges from 74 to 80 UAH per package.

In the study, attention also was paid to producers of medications imported from India to Ukraine (Fig. 5).

The data obtained from the analysis of range width of drugs imported into Ukraine. Thus, Kusum Healthcare Pvt. Ltd. submitted by 52 tradenames, Ranbaxy Laboratories Limited 28 tradenames, and Dr. Reddy's Laboratories 26 tradenames.

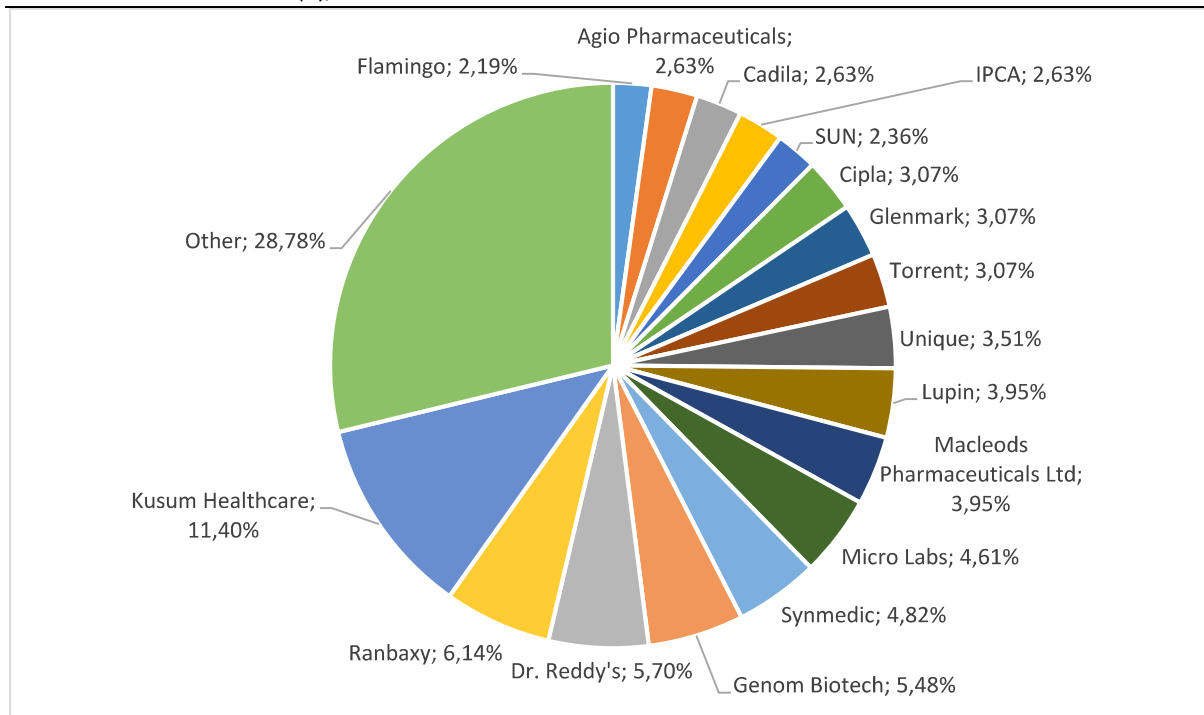


Fig. 5. Indian drug's manufacturers that are presented in the Ukrainian market

At the same time, if we analyze the volumes of product sales, the three leaders is slightly different. The first place is occupied Kusum Healthcare Pvt. Ltd. During the reporting period, the company sold 9.8 million packages of its products in excess of 380 million. UAH. The most popular drug given manufacturer is Gripgo® (pill blister, №4) the amount of its sales amounted to 831,924 package amounting to 3 283.28 thousand UAH.

The second place was taken by the company Dr. Reddy's Laboratories the sales of its products amounted to 4.5 million packages in the amount of 170 million UAH. The drug manufacturer is the leader of the

Omez® (caps. 20 mg, №30), for 2016 in Ukraine it was sold about 1.49 million units on a total sum 68.04 million UAH. The three leaders, in terms of sales, closes Ranbaxy Laboratories Limited, which sold 3.5 million packages of its products amounting to over 153 million UAH. The most popular among Ukrainians is a drug Ketanov (coated tablets 10 mg blister, №10). The volume of its sales amounted to 1.6 million packages in the amount of 30 million UAH.

High-quality and affordable medicines produced in India is slowly but surely gaining the whole world, and Ukraine. In the study, we have identified the top 10 most used Indian drugs (Table 2).

Table 2

**Top 10 Indian preparations in Ukraine**

Rating	Trade name	Producer	Dosage form	Quantity, pcs.	Sum, thousand. UAH.
1	Ketanov	Ranbaxy	coated tabl. 10 mg blister, №10	1 684 271	30 193,57
2	Omez®	Dr. Reddy's	caps. 20 mg, №30	1 490 946	68 038,74
3	Emceph®	Emcure Pharmaceuticals	powder for solution for injection 1000 mg vial, №1	1 297 464	45 504,90
4	Metrogyl®	Unique	solution for infusion 500 mg vial. 100 ml, №1	1 030 680	9 957,81
5	Com-bispasm®	Synmedic	tabl. blister, №10	974 638	14 505,21
6	Gripgo®	Kusum Healthcare	pill blister, №4	831 924	3 283,28
7	Citrine®	Dr. Reddy's	tabl. film-coated 10 mg blister, №20	751 913	28 750,26
8	Fanigan	Kusum Healthcare	tabl., №100	750 764	78 077,48
9	Fusys®	Kusum Healthcare	tabl. 150 mg blister, №1	566 888	11 098,84
10	Faringosept	Ranbaxy	molded lollipops 10 mg blister, №20	548 204	22 793,72

The majority of presented in the Table medicines have become bestsellers in Ukraine. Most of the surveyed during the research consumer of these medications 73.32% did not know that the producer is India.

**VI. Conclusions.** Anticipating the development of the pharmaceutical industry in India, we can assume that in the future to the Ukrainian market will be received new medicines. Ukrainian government needs to

take an example from India and encourage the pharmaceutical industry. This can be done through: tax incentives for pharmaceutical manufacturers, not excluding the benefits of the research, to create a special economic zone, new research institutes and educational institutions.

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## THE CLINICAL CASE OF THE ACQUIRED POST-INFECTIOUS THROMBOCYTOPENIA AGAINST THE BACKGROUND OF VIRUS-BACTERIAL PLEUROPNEUMONIA

**Gordienko I.A.**

*Bogomolets National medical university  
Ukraine*

**Malikov O.V.**

*Bogomolets National medical university  
Ukraine*

### КЛІНІЧНИЙ ВИПАДОК НАБУТОЇ ПОСТІНФЕКЦІЙНОЇ ТРОМБОЦИТОПЕНІЇ НА ТЛІ ВІРУСНО-БАКТЕРІАЛЬНОЇ ПЛЕВРОПНЕВМОНІЇ

**Гордієнко І.А.**

*Національний медичний університет імені О.О. Богомольця  
Україна*

**Маліков О.В.**

*Національний медичний університет імені О.О. Богомольця  
Україна*

#### Abstract

In this article laid down the clinical case of the acquired post-infectious thrombocytopenia against the background of virus-bacterial pleuropneumonia, associated with viral mix-infection, that is members in the family Herpesviridae. Besides, analyzing the modern scientific data, the authors came to the conclusion, that one of the main reason of severe course of pneumonia is the underestimation of severity of patient status during a hospital admission. That is caused by scanty or slight clinico-laborator and roentgenologic finding on early stage of disease. Moreover, in 14-40% of clinical cases the inflammatory diseases of lungs on beginning stage of course stay not diagnosed, and only in 14% of patients with pneumonia were right diagnosed on first three twenty-four hours. As a conclusion, we have all reason to state, that members of family Herpesviridae have tropic action to injury of hematopoietic system structures, in turn, makes the course of virus-bacterial associated pneumonia difficult.

#### Анотація

У статті наведено клінічний випадок набутої постінфекційної тромбоцитопенії на тлі вірусно-бактеріальної плевропневмонії, яка була асоційована з вірусною мікст-інфекцією, представники якої належать до родини Herpesviridae. Крім того, аналізуючи сучасну наукову літературу, автори дійшли висновку, що однією з головних причин тяжкого течіння пневмонії є недооцінка тяжкості стану при надходженні до стаціонару, що зумовлено скупою або «стертою» клініко-лабораторною і рентгенологічною картиною на початковому періоді розвитку захворювання. Більш того, в 14-40% випадків запальні захворювання легень на ранніх етапах течіння залишаються не діагностованими, і лише у 14% хворих на пневмонію правильний діагноз встановлюється в перші три доби захворювання. Як підсумок, можна вказати на тропність представників родини Herpesviridae щодо ураження структур гемопоетичної системи, що, в свою чергу, ускладнює течіння вірусно-бактеріальних асоційованих пневмоній.

**Keywords:** pneumonia, thrombocytopenia, mix-infection, herpes-virus infection, tropic.

**Ключові слова:** пневмонія, тромбоцитопенія, мікст-інфекція, герпес-вірусна інфекція, тропність.

**1. Вступ.** Пневмонія, або запалення легень – група різноманітних за етіологією, патогенезом і морфологічною характеристикою гострих локальних інфекційно-запальних захворювань, які характеризуються вогнищевим ураженням респіраторних

відділів (альвеол, бронхіол) легень з внутрішньо-оальвеолярною ексудацією, що підтверджується при фізичному і рентгенологічному дослідженні, та супроводжується різним ступенем вираженості гарячкової реакції й інтоксикації [1, с. 19].