



The Origins of the Modern Concept of Acute Pneumonia

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The history of acquaintance of medicine with acute pneumonia has more than two and a half millennia, and the first mention of it is attributed to Hippocrates. During this long period, acute nonspecific pneumonia was reasonably considered severe and dangerous, but not necessarily fatal. In addition, the disease has never belonged to the category of infectious processes that require isolation of patients and special precautions. These characteristics of acute pneumonia and their relation to it were based and reasoned by centuries-old observations and experience.

The most frequent causative agents of acute pneumonia were identified and studied with the advent and development of Microbiology, but the results of these studies did not change the prevailing views on the causes and nature of the disease. And yet the centuries-old tradition of views on acute pneumonia as a certain inflammatory disease has undergone imperceptible, but very significant changes. These conceptual changes have indeed occurred unnoticeably over the past few decades as a result of the hypertrophied assessment of the place of antibiotics in the overall structure of treatment.

The discovery of antibiotics is one of the greatest achievements of medicine of the last century, and their practical application has saved millions of lives. These are generally recognized historical facts that cannot be doubted. The first clinical results of the use of antibiotics seemed fantastic, because after the first injections of the drug there was no need for additional means of assistance. The triumphant beginning of the antibiotic era became the basis for the revision of many of the foundations of the disease. The main focus in the treatment of patients with AP has been on antibiotic therapy and eventually led to the establishment of criteria for the start of care for patients such as "antibiotics alone". Accordingly, the training programs for doctors were reorganized.

The subsequent course of events in this section of medical knowledge is the history of persistent preference for the suppression of microbial factor in the treatment of patients with AP and no less persistent oblivion of scientific facts important for understanding the mechanisms of disease development. At the beginning of this period, such a simple and even primitive approach to the treatment of these patients did not cause serious doubts or fears, because it justified itself with concrete results. Each new generation of doctors was

brought up in the spirit of exceptional reverence for antibiotics and gradually growing fear of symbiotic microflora.

But the years went by. More and more new generations of doctors were trained in this section on the basis of the exceptional dependence of the results of treatment of AP on antibiotics, and a narrow look at the essence of the issue has become not only a tradition, but also received the status of the basic concept of the disease. The results of the formed ideas about the nature of AP today can be found in the scientific and educational literature of any level. The main part of such texts, as a rule, is a detailed analysis of the microbiological features of the etiology of AP and no less detailed list of recommended antibiotics depending on the pathogen. The very description of these materials evokes a sense of respect and reverence for the research and collection of these scientific facts. However, we are talking about literature, which is not only and not so much has a cognitive value, as it should indicate and determine the actions of the doctor. Therefore, it is necessary to look at the didactic value and practical use of modern scientific articles, monographs and textbook sections on the problem of AP.

Currently, even in the best health systems, the treatment of patients with AP is based on the empirical choice of antibiotics. No doctor in the world will be able to provide objective data on the specific causative agent of acute pneumonia, which he has just successfully cured. After all, the only accurate criterion for such evidence can only be the study of the material taken directly from the focus of inflammation, is not it? Unfortunately, as you know, this possibility appears only in a small group of patients in the later stages of the process, when there are purulent complications.

To the above, we should add a high percentage of pleural complications among patients with AP, entering the treatment in hospitals. Resuscitation doctors are well aware that many patients entering the Department, the disease continues to progress, despite the use of the most modern techniques and drugs. This phenomenon is explained exclusively by the presence of such patients of the super virulent microflora. But, the existing concept of AP does not even allow the possibility of other explanations for the ineffectiveness of

treatment. Just as there is no scientific argument about the so-called sterile pleural empyema.

A long-standing view of AP pathogens as the main and only cause of the disease, logically (but unjustifiably) has led in recent years to the fact that acute lung inflammation is now increasingly considered and classified as an infectious process. The only argument in favor of this opinion is only the presence of bacteria in the focus of inflammation.

AP has always been classified as a non-specific inflammatory disease, but has never presented a risk of infection and spread of the epidemic. The only exception may be viral infections, but this is another category of patients. By the way, today, despite the change of terminology, strict precautions for a wide contingent of patients with AP has not yet been proposed.

In parallel with the above-mentioned transformation of views and perceptions, the practical application of antibiotics launched another very important process that took a long time to begin to show their results. Thus, the widespread use of antibiotics disturbed the balance and cohabitation in the biological tandem, which is represented by the microorganism, on the one hand, and its symbiotic microflora, on the other. The results of this process were additional and convincing confirmation of at least two important features of the biological world: the impossibility of complete sterilization of the microorganism and the unique adaptability of biological objects. For example, the main causative agent of AP since the appearance of bacteriological studies remained pneumococcus. The last decades are characterized by periodic change of the leader among agents of AP. In addition, the consequence of the widespread use of antibiotics is the emergence and gradual increase in the group of antibiotic-resistant microbes.

The introduction of antibiotics into clinical practice has launched a kind of competition and race process between pharmaceuticals and the microbial world around us. This process cannot be stopped, as this option has disastrous consequences. However, the current situation should not remain a passive continuation. It has its own solution. The main obstacle on the way out of the current problem of prevention of complicated forms of AP is the modern system of views on the nature of the disease. Even if someone sees the causes of this problem, they are limited in their decisions and actions by existing recommendations, protocols and professional requirements. Only looking at the Essence of this disease from other positions, you can count on significant progress in this section of medicine.

Against the background of the above well-known data, the extreme degree of surprise and absolute misunderstanding is due to the inattention of medical specialists and researchers of long-known and proven scientific facts directly related to the emergence and development of acute nonspecific inflammation in the lungs. In this context, we are talking about the basics of medical knowledge that every doctor should know after graduation, regardless of specialty. It is worth recalling the most important scientific facts that help to understand the processes that invariably accompany the AP.

- AP is not contagious specific disease and its etiology is

represented by non-specific bacteria that are usually found among the symbionts of healthy people. Patients with AP do not require isolation or other epidemiological measures.

- The body's response to any stimulus, including the initiation of inflammation, is highly individual and unique.
- The basis for the inflammatory transformation of the body tissue is a vascular reaction with a specific stage sequence.
- Small and large circles of blood circulation have not only a direct anatomical connection, but also an inverse functional interdependence.
- The vessels of the lesser circulation are highly sensitive reflexogenic zone.
- Among the nonspecific forms of inflammation, AP is the only process occurring in the system of lesser circulation.
- Any acute inflammation is accompanied by five classical signs, which were described several centuries ago by Celsus and Galen (heat, pain, redness, swelling, and loss of function). Depending on the localization of the process, the fifth sign (loss of function) is the most important as it determines the clinical manifestation and severity of the disease.

The above materials allow us to present the nature of the changes and to recreate the overall picture of the pathogenesis of AP. At the same time, special attention should be paid to information 4 and 6 points, which is a warning about the automatic transfer of conventional methods of care for other diseases in the treatment of patients with AP.

More than 30 years ago, the author of these lines, working in Siberia, faced a large flow of hospitalizations of patients with aggressive onset of AP. Generally accepted principles of treatment, different from today's only new generations of drugs, did not give the expected results. Then began the search for a way out of this difficult situation. This work has been done and tested in a clinical setting in the years 1976-1984 in Novokuznetsk State Institute for postgraduate doctors (USSR, Russia). The above-mentioned classical facts of medical science formed the basis of the new doctrine of AP. Additional studies were conducted to clarify certain elements of the pathogenesis of the disease. All additional analyses were based on representative material and subjected to statistical processing.

The main result of this work was the creation of a new doctrine of AP and on its basis the revision of the principles of medical care for these patients. In total for the specified period the analysis of supervision and treatment of 994 children with AP and its various destructive and pleural complications is carried out. The revised recommendations for treatment were applied in 101 patients in the initial period of aggressive forms of AP, as well as in 102 patients who at the time of hospitalization already had effusion in the pleural cavity. The received results allow to speak about possibility of the guaranteed prevention of suppurative and destructive complications of the disease. The summary results of this work and its fragments were published for the first time only in Russian [1]. Only in recent years has there been time and opportunity to translate into English and publish previous studies and clinical trials in a separate book [2].

The details of the studies described in this book, combined with the classical principles of medicine and biology give an idea of the unique mechanisms of AP development and existing methods of influence on them in the direction of stimulation or inhibition. The presented materials, supported by objective testing, statistical processing and the results of clinical testing, give an idea of the possibility of guaranteed prevention of purulent-destructive complications of the disease and can become the basis for further work in this direction.

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