

Acute Pneumonia: Biological Rules and Laws Require Attention and Respect

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Various aspects of human life proceed according to the existing biological rules and laws regardless of our consciousness. The influence of such biological stereotypes is manifested in all possible situations, including in the state of disease. The presence of certain patterns in the development of diseases allows them to distinguish and classify. The identification of such biological patterns was given great importance throughout the history of medicine, and established and proven facts were immediately included in the basic training program of doctors. Therefore, at first glance it may seem that modern curricula of medical students include many abstract topics and theoretical disciplines that are very far from the practical sections of medicine. However, the increase and accumulation of scientific information is the basis for the progress of medical care, and the assimilation of this information significantly expands the scientific worldview of modern doctors and radically distinguishes their erudition and professional competence from the level of training of medieval healers, is not it?

These traditions and trends in the development of medicine and medical training are well known to readers and are not a revelation. In addition, the tremendous progress made in recent years by the media and communications has made it incredibly easy to obtain almost any information needed. Today, you don't have to run to lectures or go to the library to find answers to your questions. However, in this context, it is not so much about the principles of formation of medical concepts and worldviews, but about exceptional situations in this process, the existence of which is difficult to find a logical explanation. One of these situations is a common understanding of the nature of acute pneumonia (AP) and the rationale for treatment approaches on this basis. The most dramatic and inexplicable, from my point of view, sign of the situation in the AP are long and persistent theoretical explanations of the nature and mechanisms of the disease,

which ignore the proven scientific facts and at the same time are not supported by objective arguments and final results. For such criticism not to be another Declaration, it is necessary to recall scientific materials that have only one interpretation and have long been included in the list of biological axioms. So, first, the facts that are no longer discussed, but accepted as obvious.

1. AP is a classic example of an inflammatory process, and this term is duplicated by a simple synonym-acute inflammation in the lung.

2. At the heart of the inflammatory transformation of tissues is a vascular reaction, which has a strictly defined and consistent change of stages. It is established and proved that the initial stages of inflammation are accompanied by high permeability of the vascular wall with increased edema and tissue infiltration. The chronology of these stages and the corresponding nature of tissue changes have been studied and described not only as a General mechanism of acute inflammatory processes, but also confirmed in AP [1].

3. Any acute inflammatory process is accompanied by 5 integral classical signs (heat, pain, redness, edema, loss of function), which were described several centuries ago by Celsus and Galen. The fifth sign (loss of function) is of the greatest practical importance, which, depending on the localization of the process determines the characteristics and severity of clinical manifestations of the disease.

4. The close interdependence between the small and large circulatory circles has a long history of fame and research. The fundamental differences between these two vascular systems, both anatomical and functional, do not prevent the synchronous and coordinated work of the right and left parts of the heart, which should pump an equal amount of blood. The maintenance of this balance is due to the automatic preservation of the inverse proportions in blood pressure between the two blood circuits and is regulated by the reflex from the baroreceptors of pulmonary vessels (Schwiegk's reflex).

5. Among the huge number of known modern medicine inflammatory processes of nonspecific etiology only AP is the only disease that occurs and develops in the pool of the small circle of blood circulation.

6. Inflammatory changes in the tissues are inevitably accompanied by irritation of nerve receptors. The most common manifestation of this mechanism is the second classic sign of inflammation-pain. It is well known that in most patients with AP, unlike inflammatory processes of other localization, pain syndrome is absent, since the lung tissue does not contain pain receptors, and pain in AP usually appears when the pleural leaves are involved in the process. However, irritation of other types of receptors in the inflamed lung tissue will be manifested by the reaction, the nature of which is due to the type of these receptors.

The above-mentioned scientific facts are not a complete list of obvious materials that are in one way or another related to the problem of AP. However, today they are United by indisputable evidence of objective research and long-term (even centuries) confirmation. The main provisions of each of the above examples have long ceased to be the subject of discussion and debate, but the essence of these phenomena and facts is often considered in clinical medicine as purely scientific information that can not have direct practical application. From my point of view, this is a serious misconception with far-reaching consequences. In order that such statement was not unreasonable, it is worth remembering some modern ideas of AP and approaches to its treatment which exist many years and are not subject to any doubts, despite the lack of objective proofs and the contradiction to the proved scientific facts.

First, for many years the basis of treatment of patients with AP are antibiotics. In this case, prescribing antibiotics is often the only way to help patients who are not hospitalized. The discovery of antibiotics was one of the greatest achievements of medicine of the last century, which saved and continues to save millions of lives. This fact is beyond doubt. However, for the sake of justice, it is worth recalling the negative side of this type of treatment—the imbalance of the body with the symbiotic microflora, the emergence and growth of the number of antibiotic-resistant strains, the strengthening of this resistance and the growing need to release more and more new drugs. These negative effects of antibiotic therapy have not yet reached their climax, but continue to grow, so we need to think and look for the best way out of the situation today.

Among the published recommendations for the treatment of this group of patients, the main place is occupied by the enumeration of the most frequent pathogens of AP and the most optimal antibiotics. Such recommendations are logical in accordance with the results of laboratory and experimental studies. However, in practical medicine, all these recommendations fall into other conditions for their implementation and turn into a form of wishes. It is no secret that antibiotic therapy in AP has always been and continues to be conducted empirically [2]. The possibility of bacteriological examination of the material from the inflammation zone appears only in a limited group of patients with purulent pleural complications. Most patients with AP are cured and continue to be cured without establishing the pathogen, and the choice of the drug is subjective and depends on the experience and opinion of the attending physician.

Secondly, the desire to have objective evidence of the pathogen AP gave rise to a false, in my opinion, the method of examination of patients. Statistics of AP etiology is currently estimated based on the results of the study of the microflora of the oropharynx and nasopharynx [3-6]. The very principle of this approach to diagnosis contradicts the materials of examination of healthy people. It has long been known that often healthy people are carriers of more aggressive strains than patients with pneumonia [7], but the presence of a certain bacterium in the body does not mean the presence of the disease. In modern literature there is no reasoned explanation for these inconsistencies, but the ambiguity of the situation usually gives rise to fears that are not always justified. An example of such concerns is the tendency to isolate patients without clinical signs of inflammation, but with the presence of opportunistic antibiotic-resistant strains according to the results of bacteriological studies. However, judging by the tendency of growth of such strains among symbionts, the percentage of such isolations will steadily grow and may be accompanied by a significant restructuring of organizational and epidemiological conditions.

Third, all modern textbooks, manuals and monographs on AP emphasize the leading role of microbial factors in the development of the disease and the importance of its suppression for the results of treatment. At the same time, all these descriptions state the development of acute inflammation in the lungs with the participation of other pathogens—viruses, fungi, parasites. In this regard, the recommended antibiotics should already be considered as a possible preventive rather than therapeutic treatment. If we take into account the trend of recent years to increase the share of AP viral etiology, which is almost half of all cases [8], it turns out that a significant part of patients with AP remains without traditional medical care.

Fourth, antibiotics have only antimicrobial properties, but do not have an anti-inflammatory effect. Even in the case of rapid and effective destruction of pathogens, the elimination of running the inflammatory process depends entirely on the protective and adaptive capabilities of the body, as well as the direction of

additional therapeutic efforts. Therefore, the widespread use of “antibiotics alone” in AP is logically interpreted as a narrowly focused medical care for these patients, and not as an integrated approach to treatment.

Fifth, if the patient needs hospitalization, in this situation, as a rule, it is recommended to use additional methods of General intensive care. As a rule, such recommendations, regardless of age, include intravenous infusion of solutions and oxygen supply. At the same time, objective testing of these methods in conditions of inflammation in the lungs was not carried out, which would be especially important to do during the infusion.

The list of existing contradictions and inconsistencies in the AP section is also far from complete and can be continued. However, even this incomplete information indicates serious misconceptions and illusory views on the nature of AP. Fixation of attention only on the pathogens of AP as the main cause of the emergence and further development of the disease significantly limits the understanding of the problem as a whole and prevents the assessment of its other more important aspects. If we summarize all of the above, a number of additional issues and topics for discussion arise unwittingly and logically.

What medical principles and scientific grounds associate AP with sinusitis, erysipelas, osteomyelitis and some other nosologies, if the main method of treatment of such various diseases is only one and the same antibiotic?

Why is a large-scale and expensive campaign such as “vaccination against pneumonia” not achieving the expected success [9,10], similar to the success of vaccination against many infectious diseases?

Who, where and when objectively proved that in the conditions of growing blood flow disorders in the small circle of blood circulation with AP intravenous infusion of solutions to these patients is necessary and useful?

Can we automatically transfer the experience of intravenous infusions in patients, for example, with diarrhea or peritonitis to patients with AP?

Who, where and when denied the importance of permeability factor in the development of acute inflammation and proved the safety of increasing blood flow in the area of acute inflammation in the lung by direct direction to her intravenous infusion?

Where can you find objective evidence of the claims that a relatively small focal infiltration of pulmonary tissue in AP, disrupting gas exchange in this area, is the cause of total hypoxemia?

Why a large number of lobar atelectasis and even the entire lung is not accompanied by such an acute and progressive hypoxemia?

The number of questions that naturally arise in the analysis of modern views on the nature of AP and the principles of treatment of such patients is much more than they could be given in this letter. But, the essence of all these appeals lies in one indisputable fact: biological stereotypes, many of which are already well studied, proven and accepted in the form of classical definitions, acted, act and will act independently

of our perception. Such unchanging standards in the dynamics of biological processes can change the results of our therapeutic efforts against expectations. Therefore, forgetting such important information does not cancel these rules, but only impoverishes and reduces the level of our professional competence. The natural consequence of such oblivion is the stagnation in the solution problems and the accumulation of new “unexplained” phenomena.

In such situations, the main obstacle to the revision of existing concepts and canons is usually our psychology, which slows down and delays the change of traditional attitude to a particular problem. The catalyst for this process can only be an understanding of the inevitability of such a review and obtaining additional objective evidence of such a need. The last statement is based on personal experience, when complex and incomprehensible phenomena from the point of view of the usual ideas about the course of the disease forced the author of these lines to radically change the point of view on the nature of AP. The reward for the work done was the results of treatment of patients with AP, which showed that the timely elimination of inflammatory mechanisms in the lungs can reliably prevent the development of complications. To date, the final results of this work have been published not only in Russian [11], but also in English [12]. These materials can give tangible benefits to future researchers of the problem.

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