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Letter

What determines the fate of a patient with acute inflammation in the lungs?

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Case perspective

Acute lung inflammation (ALI) has always been considered a serious disease. However, over the past decades, most people on our planet have maintained hope and confidence that modern medicine can actually help them in case of illness. And suddenly, against the background of the nascent coronavirus pandemic, a vacuum for specific treatment of patients with ALI was clearly created. No, according to modern statistics, the increase in the number of patients with ALI and the percentage of mortality among them has not yet grown to catastrophic indicators, but the usual treatment scheme for such patients was simply unsuitable in this situation and professional (!) medical care for viral lung damage is reduced to auxiliary means.

Today, patients with coronavirus pneumonia receive medical care in full accordance with the principles of ALI treatment that have been applied over the past decades. This list includes various symptomatic medications, intravenous infusions to remove toxins and make up for fluid loss, administration of medications to correct blood pressure (vasopressors, hormones), and oxygen supply. In the most severe situations, methods of auxiliary ventilation and even special equipment are used to increase the concentration of oxygen in the blood (extracorporeal membrane oxygenation). Despite such an impressive set of medical approaches and tools, their use does not significantly affect the results of treatment, and experts unanimously note the lack of a reliable and truly effective medical care package for COVID-19.

Of course, the suddenness of this situation can be explained by a significant increase in the role of viruses among pathogens and the complete loss of the therapeutic value of antibiotics in viral processes. It would seem that everything is simple, clear and logical, since effective antiviral drugs remain the hope for the future, but today there is no such possibility in medical practice. However, a number of questions, contradictions and paradoxes that have accumulated over the period of antibiotic use and cast doubt on the validity of such a narrow approach to the elimination of inflammation remain without proper arguments and explanations. Moreover, the suddenness of such a collapse of medical care should be the main reason for a detailed analysis of the reasons why modern medicine, which has fantastic successes and achievements in various fields, continues to stand still in solving such a long-standing and urgent problem as the treatment of acute pneumonia.

While bacterial forms of acute pneumonia prevailed, the standard situation in this branch of medicine and the

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absence of signs of great anxiety persisted for many years. Doctors in the case of acute inflammation in the lungs prescribe a specific antibiotic according to General recommendations and their experience, considering their medical duty fulfilled at the highest level. In turn, the patients had no doubt that they were receiving the necessary medical care in accordance with the latest achievements of medical science. However, the causative agents of bacterial pneumonia were represented by various types of microorganisms, and the true culprit of the disease in most patients remained unknown, so treatment failures were attributed to the alleged presence of a particularly virulent microbe. At the same time, the identification of such strains in healthy people did not receive sufficient analysis of the reasons for this fact.

In the context of the long-standing preference for antibiotics as the main treatment for pneumonia, no one has betrayed and does not betray special significance to the fact that the same drugs are considered simultaneously as the leading treatment for a number of inflammatory diseases that may have the same pathogen, but have incomparable characteristics with lung damage. The very idea of the possibility of healing various and incomparable diseases with one medicine should cause a specialist great distrust and reflection, since such an ideology contradicts the basics of clinical medicine.

The very fact of diagnosis of inflammation in the lung tissue is not associated with the pathogen. When you need to clarify the condition of the lungs, every doctor prefers to be interested, first of all, in the results of x-ray examinations, rather than microbiological tests, right? At the same time, the data obtained on x-rays reflect the presence of inflammatory changes in the lung tissue, and no one has yet claimed that he was able to see and determine the nature of the pathogen from the images obtained. In other words, in such a situation, we are talking about recognizing the effect, not the cause of the disease. The bacterial factor plays the role of a lit match, and the fire that has started (in this case, an inflammatory reaction) develops according to its own rules and laws. These features of the dynamics of inflammation have been studied, are well known to medical science, and in acute non-specific inflammation, such as pneumonia, do not have a fundamentally important dependence on the pathogen.

Not only in the early years of antibiotics, but even a couple of decades ago, when their effectiveness was higher, the treatment of pneumonia was called "antibiotics alone". This terminology means that treatment is focused on drugs that are designed only to suppress microflora and do not directly affect the chain reaction of the inflammatory process. In other words, if the patient receives “antibiotics alone” as a treatment for acute pneumonia, such therapy helps to eliminate the “revolt of microorganisms”, and the further fight against inflammation and elimination of its consequences depends entirely on the capabilities of the body itself. And if we interpret this situation more specifically, the fate of the patient was made completely dependent on antibacterial therapy.

In this regard, it is necessary to pay attention to one specific feature of antibiotics. Unlike most drugs that affect the structures and derivatives of the body itself, antibiotics are directed at its accompanying ecosystem. In this case, we are not talking about the entire composition of the microcosm that inhabits our body, which includes bacteria, viruses and fungi, but mainly about the microbial part of it. Bacteria are one of the representatives of living biological objects, and they have confirmed this fact by their ability to

adapt to changes in external conditions and unexpected aggression.

When antibiotics were a relatively new method of treatment, they gave the maximum effect. This was also the case in the initial period of their use. This result was repeated at the beginning of the use of new, more advanced drugs. Relatively rapid suppression of the “revolt of microorganisms” reduced the development of the inflammatory reaction in its early stages and made it easier for the body to eliminate it in the future. But over time, the resistance of bacteria to this type of treatment grew, and more and more patients needed additional help.

For many years, the priority of antibacterial treatment has formed the idea of the leading role of infection in the nature of the disease, so additional treatment methods were focused on this feature, and not on the localization of the process. The exceptional difference between the inflammatory processes of the lungs and other localities of the focus of inflammation did not receive the necessary assessment, and as a result, the treatment complex was supplemented with methods that were justified and tested in other nosologies. The consequences of this misconception for many patients should be assessed, to put it mildly, as inappropriate and contrary to the essence of the disease.

The lungs are literally responsible for the" breathing " of every cell in our body. This organ not only supplies oxygen to its alveolar parts through ventilation, but is also responsible for the complete saturation of blood oxygen and its delivery to all tissues of the body, directly participating in the regulation of blood pressure. The vessels of the lungs are actually the functional half of the entire vascular bed of our body. Having an indissoluble anatomical connection with the vascular system of our body and internal organs, they are its complete functional opposite. In a normal state, the blood pressure in the vessels of the lungs is several times lower than the blood pressure in the periphery, which is measured when seeking medical help.

The above-mentioned features of blood circulation in our body are well known and sufficiently studied, and the inverse proportion of blood pressure between the vessels of the lungs and the vessels of other areas of the body is an indispensable condition for our existence. The disproportion of these indicators and the violation of parity between the volume of blood entering the lungs and the periphery lead to a condition incompatible with life. However, patients who have suffered such deviations do not have the possibility of their targeted regulation. For such conditions, the body has an Autonomous adaptation system. One of these mechanisms is a reflex from the receptors of the pulmonary vessels (baroreceptors) in the event of increased pressure in them.

Acute inflammation in the lung tissue is accompanied by characteristic classical signs, among which the most important indicator is a violation of the function of the affected organ. The inflammatory process inevitably involves the blood vessels of the lungs, impeding blood flow and increasing pressure. For the body, a sudden increase in pressure in the vessels of the lungs is a distress signal, and it seeks to protect the lungs from overload and subsequent edema by reducing blood flow to this organ.

The clinical manifestations of the results of such adaptation have individual differences and depend on the rate of development of the inflammatory response. The slow development of the inflammatory response allows the body to Deposit some of the circulating blood and reduce its flow to the lungs. However, in the event of a rapid

development of events, the body cannot avoid such an emergency measure as increasing the capacity of peripheral vessels by reducing their blood pressure, which ultimately also reduces the return of blood to the lungs. Therefore, in the most severe situations in patients with ALI, blood pressure at the periphery begins to decrease as a reflection of the extreme degree of adaptation processes.

The described mechanism of disease development is based not only on the results of various fundamental studies that have passed the test of time, but also on the materials of special clinical trials conducted by the author. This scheme contradicts therapeutic approaches that have been widely used for many years and continue to be used. To date, the serious condition of a patient with ALI is accompanied by the standard appointment of intravenous infusions. This method is considered mandatory for filling the deficit (?) of fluid and detoxification. You will not find in the literature objective and convincing evidence of the volume and quality of fluid lost by the patient, which would be a very interesting test for the early period of the disease, when fever and shortness of breath are the only possible causes. The purpose of this type of treatment for ALI, as well as the evaluation of its results, are based on assumptions and analogies with other diseases.

In fairness, it should be noted that many experts warn of the danger of injecting such patients with excess fluid and overloading the right half of the heart, which fills the vessels of the lungs, but such streamlined recommendations do not change the principles of treatment. Numerous statistics show that the most severe patients from this cohort form a group that requires additional resuscitation. Even if we limit ourselves to describing these efforts, it is not difficult to understand that they only stimulate a direct flow of fluid to the affected area in the lung tissue, which works in favor of the disease, not the patient, is not it?

One of the following signs of negative dynamics of the disease is a decrease in blood pressure at the periphery. This signal reflects the extreme extent of the body's attempts to protect the lungs from overload and edema. However, since the conceptual understanding of the nature of bacterial pneumonia considers the microbial pathogen as the only cause of complications, such a clinic is identified with sepsis and septic shock. The fact that the mandatory confirmation of these complications by detecting bacteria in the patient's blood does not exceed a few percent does not confuse anyone and is not perceived as a contradiction.

One of the specific distortions in the assessment of the condition of patients with ALI is the peculiarities of their monitoring. While the main cause of the disease is located in the lung tissue and its vessels, one of the most important criteria for monitoring the patient is considered to be indicators of peripheral blood circulation, which have the opposite value compared to the pulmonary blood flow. But, as you know, the results of such monitoring are the basis for correcting and prescribing drugs (vasopressors) that increase blood pressure. If we add to the above-mentioned mortality rates among patients with ALI in intensive care units, which according to some data reach 40-50% or higher, then this is really a reason for serious analysis and reflection.

This presentation uses repeatedly published materials, but the author tried to avoid the form of a standard literary review and focus the reader's attention on the specific provisions of the problem raised. Therefore, references to literary sources that reflect each affected section are not provided. If someone does not find this form very convincing, then a detailed presentation of this material

with the necessary literary references and the results of clinical trials can be found in the recently published monograph by Igor Klepikov “ Acute pneumonia. New doctrine and first treatment results”-ISBN (978-620-2-67917-6) > {https://www.cheapesttextbooks.com/IM/?keyval=ISBN+%28978-620-2-67917-6%29 }.

The information provided on bacterial forms of pneumonia was necessary in order to look at the current situation with COVID-19 from a different angle. First of all, because we are still talking about acute inflammation of the lung tissue and damage to its vascular bed. Anatomical and histological studies of the lungs in this pathology are an objective confirmation of this fact. Damage to the same organ structures is accompanied by the same functional disorders described above. When an inflammatory process occurs in one of the limbs, its function is partially or completely lost, regardless of the pathogens of the disease, isn't it? If an inflammation of the middle ear develops, the same thing happens with the auditory function. This biological rule manifests itself regardless of our preferences, and inflammation in the lungs is no exception to this rule.

The emergence of the current pandemic seems sudden only at first glance. In recent years, there has been a marked increase in the number of viral pneumonias, and the role of antibiotics in this process has yet to be investigated and evaluated. Previous epidemics involving coronaviruses (SARS, MERS) were a kind of warning, but they were not accompanied by a review of the overall strategy in this medical direction. The development of a real pandemic with changes in the epidemiological situation and the devaluation of basic medical care (antibiotics) was a shocking event for many, but the dynamics of many characteristics of the disease, especially in the last couple of decades, indicates its inevitability. Moreover, a huge range of variants of the manifestation of this infection in the presence of a single pathogen does not fit into the usual picture of the presence of strains with different aggressiveness.

In earlier times, medicine did not have the same capabilities to conduct research and monitor patients as it does today, and many biological laws and clinical features were still unknown. However, the empirical way allowed the old medicine to find and apply therapeutic methods that helped the body adapt in the event of ALI. Currently, such ancient methods as cupping therapy or General body cooling are used everywhere, including in fitness clubs and beauty salons, but not in emergency pulmonology, where they are most needed.

The current situation with medical care for viral inflammation of the lung tissue is not as hopeless as it seems in modern interpretations. Compliance with anti-epidemic rules and the development of preventive measures, including vaccination, is another aspect of the problem that is of fundamental importance for healthy people. But when the disease is already present, real and effective help is needed. A number of recent events have simply revealed something that has long required expert attention and radical solutions. Today, many people have already realized that patients with ALI do not have special medical care, even in the most developed and advanced health systems. And the reason for this unexpected discovery is the neglect of the fundamental materials of medical science and the distortion of views on the biological nature of the disease.

A thorough and critical analysis of past experience is necessary not only to avoid repeating the mistakes made,

but also to develop and improve previous achievements at a qualitatively new level. Only truly strong people can recognize mistakes made and strive to correct them, and the well-known dedication and commitment of medical professionals allows us to count on a much-needed step today.

Conflict of interest

None

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