

# In what Ways Has Modern Medicine Failed to Surpass the Ancient Experience?



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**Submission:** December 01, 2022; **Published:** December 09, 2022

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**Keywords:** Acute pneumonia; Circulatory disorders; Side effect of antibiotics; Pulmonogenic shock; Pathogenesis

## Opinion

The history of acute pneumonia (AP) dates back more than two millennia since its first description by Hippocrates. During most of this period, medicine has not without success sought to help this difficult category of patients. The search and selection of methods of such assistance in conditions of lack of knowledge about both the disease itself and the object of the lesion were carried out by trial and error and evaluated by subjective feelings. Despite such a primitive and blind approach in choosing first aid methods for patients with AP, ancient medicine coped with this difficult task quite adequately, since a number of methods chosen for this purpose remained in demand for many centuries until recently. Among such methods of first aid in acute inflammation of the respiratory organs in different regions of the world, preference was given to cupping therapy, bloodletting or short-term cooling of the patient's body.

The reason for such a long-term use of these techniques could only be their positive effect on the condition of severe patients. If these procedures did not give the expected result or were accompanied by frequent and serious side effects, it is unlikely that they would be able to remain the method of choice for thousands of years. In the latter connection, attention should be paid to one very significant detail of the above-mentioned methods of treatment of ancient medicine. The current level of medical information allows us to assess the direction of action of these methods and note that, despite the seemingly obvious respiratory nature of AP disorders, all these treatment methods can only affect blood flow and do not have a direct effect on lung ventilation. It is necessary to remember this feature of ancient therapeutic efforts in order to further evaluate and understand

the specifics of the action of modern methods of emergency care for this category of patients.

Methods of providing care to patients with AP have not been subjected to scientific research and testing, and the experience that medicine has accumulated over many centuries, in a short time was ranked among the remnants of the past and passed into the category of unclaimed manipulations. Today, the use of methods such as installing medical jars or various cryotherapy options can only be found in the list of procedures offered by health and beauty centers. Official medicine does not consider these methods as acceptable means of helping patients with AP. A rapid change in approaches to the treatment of patients with AP occurred after the discovery and the beginning of the use of antibiotics.

Although it was initially known that antibiotics can only affect the microbial factor and are not able to have a direct effect on the mechanisms of the inflammatory process, leaving its elimination at the discretion of the patient's body, the first results of this therapy created the illusion of the appearance of a universal anti-inflammatory agent. It was during this period that the foundations of a new concept of the disease were laid, in which the bacterial part of the etiology began to be considered as the main cause of its occurrence and subsequent dynamics. The side effects of the new type of treatment began to attract the attention of specialists due to the appearance of resistant strains and a decrease in the effectiveness of antibiotics. At the same time, the main concern was caused primarily by the search for solutions to restore the lost initial effectiveness of antimicrobials.

The fact that these consequences gradually and steadily acquired the character of irreversible biological shifts is not fully understood even now in wide circles of professionals. The emerging belief in the indispensability of antibiotics grew with each new generation of doctors, despite the constant growth of counterarguments, which eventually led to a significant deformation of scientific ideas about the essence and nature of the disease. So, throughout the entire period of antibiotic use, such a phenomenon, previously unknown, as a periodic change of the leader among the pathogens of AP began to be observed. If in the pre-antibiotic era *Streptococcus pneumoniae*, discovered in the 19th century and therefore received its name, remained the leading pathogen, which on the eve of the appearance of antibiotics ranged from 90% to 95% in the etiology of the disease [1-3], then in recent years its share among the positive results of bacteriological research in AP decreased to 10.9%-22.5% [4].

An even more unusual new feature of AP was a surprisingly powerful shift in its etiology towards viral forms of the disease. Already about two decades ago, viral lung lesions accounted for almost half of the cases of all AP diseases in the world [5-7]. With such an increase in viral forms of AP, a logical step should be a revision of therapeutic principles with their adaptation to changed conditions. In this regard, to remind specialists of the senselessness of hopes for the use of antibiotics with such observations would, in my opinion, be the height of tactlessness. However, subsequent events have shown that the change in the etiology of the disease did not even entail the necessary tactical decisions. Moreover, during the SARS-CoV-2 pandemic, when the uselessness of using antibiotics against coronavirus did not cause a shadow of doubt in the medical world, many experts continued to consider them as the leading remedy for COVID-19 pneumonia [8-10].

This perception by specialists of the etiological transformation of AP, which began to manifest itself after the start of the use of antibiotics, is a natural result of many years of training of medical personnel based on the leading role of antimicrobial treatment methods. Today, there is a real impression that professional medicine is under the hypnotic influence of the exceptional importance of antibiotics for the treatment of patients with AP. Using various terms to denote the forms of the disease depending on the pathogen, modern medicine thus seeks to determine the optimal variant of etiotropic therapy. At the same time, attempts to establish reliable differential diagnostic criteria for this trait fail in everyday practice [11-13]. The identity of clinical manifestations of bacterial and coronavirus forms of lung damage once again convincingly indicates their dependence on organ dysfunction in the inflammatory process, regardless of its etiology.

Therefore, the newly appeared terms of the disease do not bring practical benefits, because, despite the difference in etiology, we are talking about one nosology, which is called "acute pneumonia - AP". If we pay attention to the direct relationship between the inflammatory transformation of the tissues of a particular organ and the violation of its functions, we can clearly understand why the inflammation of the nail bed differs from the inflammation of the middle ear, and the clinical manifestations of pneumococcal pneumonia are very far from the picture of pneumococcal meningitis. However, at present, pathophysiological differences of inflammatory processes depending on their localization have actually lost their significance in determining therapeutic principles. Pursuing the suppression of the causative agent of the disease as the main goal, modern medicine uses general methods of additional assistance for all localizations, some of which are incompatible with the pathogenesis of AP.

The gradual loss of their initial effectiveness by antibiotics increased the need for additional means of assistance every year. This process took place by assessing the condition of patients based on the same criteria as in other localizations of inflammation. As a result of this approach to the diagnosis of septic conditions in AP, their frequency has begun to increase in recent decades, although it was in this group of observations that a characteristic feature was noted for most observations when the generalization of infection was not confirmed by microbiological tests [14,15]. It is quite easy to understand the origin of these inconsistencies if we compare the principles of diagnosis of sepsis and septic shock in patients with AP with the basics of blood circulation and its regulation in the body. Thus, one of the leading criteria for confirming septic complications is the level of peripheral blood pressure [16].

A decrease in this indicator is considered as a more important confirmation of septic conditions than the detection of the pathogen in the bloodstream. However, this completely ignores the fact that the primary focus of the disease damages the vessels of the small circulatory circle, which have diametrically opposite indicators with the periphery and have a regulating effect on the overall blood flow [17-19]. In other words, inflammation in the lung tissue is accompanied by irritation of the baroreceptors of the pulmonary vessels. This signal appears as a sign of an increase in pressure in the vessels of the small circle, which is normally 5-8 times lower than the peripheral one [17] and serves as a warning about the danger of developing pulmonary edema [19]. In such a situation, the unloading reflex, discovered almost a century ago [18], is triggered, one of the most important effects of which is a decrease in the tone of peripheral vessels with a delay in part of the circulating blood in them, which leads to unloading of the small circle.

The presented sequence of the compensatory-adaptive reaction of the organism in the case of its accelerated development will indeed be accompanied by typical signs of shock, only this variant of this complication, unlike the dominant ideas today, will have a pulmonogenic, not septic origin [20]. Understanding the features of this mechanism in patients with AP is of fundamental importance for choosing the directions of follow-up care, since the modern interpretation of shock in AP as a septic complication involves infusion therapy with a further increase in vascular overload of the small circle. It is not difficult to notice that the cardinal differences between the two presented interpretations of shock states in AP concern not only understanding the root cause and mechanisms of their development, but also, ultimately, determining the nature of further therapeutic correction of the disorders that have arisen.

Evaluation from these positions of the principles of modern medical care in the case of diagnosis of septic (?) complications of AP allow us to understand the disappointing nature of the final results, far from the desired. The sincere revelations of some specialists can serve as an illustration of the influence of modern directions of medical care on the results of treatment of patients with AP, in addition to the continuing high rates of complicated course and mortality in this disease. For example, it is reported that the condition of many patients from this group worsened after the start of inpatient treatment and despite this [16], or attention is drawn to the fact that the overwhelming number of patients with septic shock did not have it during hospitalization (!) and it developed already during treatment [21].

Such realizations can only be the result of long and unsuccessful attempts to apply some modern therapeutic directions, when the results obtained persistently refute the fruitfulness of such actions. During the SARS-CoV-2 pandemic, when patients with viral forms of pneumonia began to concentrate in specialized departments, the inefficiency of therapy became more noticeable, which caused depressive moods among the staff working there and the appearance of a new series of publications as a variant of confession and self-criticism [22-24]. In recent years, the aggressive development of the inflammatory process in the lungs, depending on the severity of the observed disorders, is regarded as sepsis or septic shock [16]. At the same time, to establish the septic nature of the observed shifts, no mandatory microbiological confirmation of these diagnoses is required, which currently allows elementary only on the basis of general clinical analogies to declare septic complications in the viral etiology of the disease [14,15].

The presence of systemic arterial hypotension in these situations is considered not as a result of compensatory rearrangement of blood flow in response to damage to the

pulmonary vessels, but as a suspicion of invasion of the pathogen into the vascular bed with subsequent hypovolemia. Today, attempts to eliminate the so-called septic hypovolemia in patients with AP are carried out with the help of bolus infusion therapy, which increases venous return to the small circle of blood circulation and acts against the body's own adaptation. Indirect evidence of the counterproductive effect of intravenous infusions in this category of patients is reflected in the general recommendations, which provide for the subsequent use of vasopressors due to the high probability of maintaining arterial hypotension after the introduction of fluids [14-16].

The absolutely obvious disorientation that has developed at present in understanding the essence of the AP problem, and the resulting miscalculations in the choice of solutions can be explained, from my point of view, only by one circumstance. Over the past many decades, the formation of scientific views in this direction has been under the growing influence of misconceptions about the indispensability of antibiotics, which have been fixed and spread at the level of official state training and medical care programs. Only the negative didactic effect of antibiotics can explain the fact that ancient medicine, which was sharply inferior in terms of scientific information to modern medicine, was able to intuitively find a more correct approach to providing first aid to patients with AP.

Some of the ancient methods of first aid in AP were evaluated using comparative objective tests, which allowed us to establish their undoubted pathogenetic effectiveness. Correction of the doctrine of the disease in accordance with the canons of biomedical science and substantiation of pathogenetic principles of medical care in AP have allowed to achieve impressive clinical results, convincingly showing the necessary direction in solving this problem [25]. Currently, the question is not what specific treatment methods should be used in patients with AP, but that misconceptions in the interpretation of the main manifestations of the disease have gone too far and the first inevitable step in solving this problem is not the search for new drugs and therapeutic techniques, but a reassessment of the existing system of views. Without this correction, further efforts will be palliative in nature, and the list of tasks that need to be solved will continue to grow.

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DOI: [10.19080/IJOPRS.2022.06.555685](https://doi.org/10.19080/IJOPRS.2022.06.555685)

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