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The Existing Concept of Acute Pneumonia is the Main Obstacle To Progress in its Treatment

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The causative agent of acute pneumonia in the pre-antibiotic era in 90-95% of cases was Streptococcus pneumoniae or Pneumococcus [1,2] which deservedly received this name due to its suppressive role of the pathogen in inflammation of the lung tissue and for a long period from the moment of its discovery remained the undisputed leader among the causes of this disease [3]. Pneumococcus did not have an absolute monopoly in etiology acute pneumonia (AP), which in this regard was considered as a nonspecific inflammation. The use of antimicrobials marked the beginning of two cardinal phenomena that contributed to fundamental changes in the state of this problem, bringing it to the state that has developed today. One of the main reasons for the withdrawal of all parties and systems involved in the development of this disease from a relatively constant, habitual equilibrium was the side effects of antibiotics, which were known even before the mass use of this therapy. Thus, the discoverer of penicillin, Alexander Fleming, speaking in 1945 when receiving the Nobel Prize, warned that the widespread and unjustified use of antibiotics could lead to serious and irreparable consequences [4]. Sharing with A. Fleming their triumph in isolating penicillin for pharmaceutical release, E. P. Abraham and E. Chain published the results of their research back in 1940, which showed the rapid development of resistance of microorganisms to antibiotic aggression [5]. The fears and predictions of the authors of this therapy began to be confirmed shortly after the beginning of the practical use of antibiotics. One and a half to two decades later, one of the first non-standard problems appeared, such as, for example, a sharp increase in staphylococcal infection, including severe pneumonia with the detection of the first resistant bacterium in the form of methicillin-resistant staphylococcus (MRSA) [6]. The main manifestations of this trend were changes in the characteristics of the etiology of AP, which previously were not so striking. This was expressed by such signs as the loss of relative constancy of the etiology of the disease and the gradual appearance in the list of such pathogens that were not previously considered in this capacity. Pneumococcus, having lost its leadership, could not return to the previous statistical peak. It was after the beginning of the era of antibiotics that one of its rather specific features was the phenomenon of a constant change of leaders and ratios among the pathogens of AP**.** The main effect of these phenomena was undoubtedly the result of the action of antibiotics, but they never received convincing explanations for the reasons given below.

The approach to the use of antibiotics throughout the time was influenced by their therapeutic effect in the initial period. The effectiveness of their use began to decrease, pathogenic microorganisms appeared that were not included in the spectrum of action of penicillin. These factors were originally programmed and were the basis of the phenomena noted above, but clinical goals and objectives prevailed over the rational and reasonable use of antimicrobials, the development of which has received wide support in medicine. Caution and prudence regarding the long-term effects of this type of treatment remained behind the scenes. New, more advanced drugs were needed, the number of which began to grow rapidly, since the appearance of each of them brought only short-term success. The most active period of development and release of new forms of antibiotics occurred in the 1950s and 1970s, which call them the “golden age” [7]. The efforts expended could not restore the original effectiveness of antibacterial therapy but allowed medicine to keep this type of treatment in its arsenal for many decades. The whole process of expanding the spectrum

and activity of antimicrobial drugs was aimed only at achieving an immediate therapeutic effect, which at that time was of great importance, saving millions of human lives. However, the natural and inevitable effect of this therapy on the surrounding microflora and microbiome of the body was not given due attention in this process, since this could prevent the preservation of the effect of antibiotics, slowing down the initiative of practical development and introduction of new drugs. Therefore, the characteristics of changes in drug resistance and sensitivity were considered from a purely pragmatic point of view. Changes in the qualities of microflora were of interest at the laboratory microlevel mainly for microbiologists and pharmacists, and such a phenomenon as the appearance of new proportional ratios between its various representatives (especially among the symbionts of the organism) was not subjected to dynamic monitoring. Practical medicine was initially not provided with preventive programs aimed at reducing the side effects of the use of antibiotics in the long term, but it was able to use them and sought to constantly identify the most common and aggressive pathogens of AP.

As a result of prolonged exposure to antibiotics, numerous variants of resistant strains of nonspecific microflora have formed, which continue to increase their presence. The discovery of new varieties in the composition of symbionts in healthy people has long ceased to cause surprise. Contrary to popular belief, there is no evidence that these strains increase the frequency of AP, but their involvement in the disease creates additional difficulties for successful treatment. In addition, at the end of the last century, there was a tendency to increase the role of viruses in the etiology of AP, and already at the beginning of the two thousandth years, information appeared that viral forms began to cover almost half of all cases of this disease in the world [8-10]. The current situation and its further development have long suggested the logical need for a radical revision of ideas about the essence of the problems and bringing the principles of treatment of these patients in line with new conditions. However, as the facts show, with the exception of the search for antiviral drugs, no changes have occurred in this section of medicine. Antibiotics continue to maintain their priority when choosing therapeutic agents. The second phenomenon of the side role of antibiotics, formed during their long-term use, has been observed for many decades, but it took a kind of test, which was the SARS-CoV-2 pandemic, for the artificially limited competence of modern medicine in this section to become obvious. In this case, we are talking about the negative didactic role of this therapy in the long-term formation of professional views on the problem under discussion. As long as the etiology of AP corresponded to the profile of antibiotics and the drugs retained a certain effectiveness, they continued to be considered as the only panacea. A similar version of the general assessment existed at all stages of medical education and vocational training, starting from the university bench. As a result, distorted and unfounded ideas about the dominant role of the pathogen in this disease have developed, and the uniqueness of the integral mechanisms of dysfunction of an organ damaged by inflammation, which determine the specifics of the localization of inflammation, have ceased to have due importance in the strategy and tactics of decision-making.

In the extreme conditions of the developing pandemic, it became quite obvious that the previous therapy of AP with the leading role of antibiotics cannot correspond to the new features of inflammation in the lungs when its etiology has a viral origin. Subsequent events, which showed the widespread principle of solving this discrepancy in patients with COVID-19 pneumonia in different regions of the world, reflected the depth of stereotypes learned in this situation, which hypnotically influence decision-making, returning medical care to the unjustifiably widespread use of antibiotics. For example, according to the results of examination of patients with coronavirus pneumonia, the number of concomitant bacterial or fungal coinfections usually did not exceed a tenth of all observations, but, contrary to logic and meaning, antibiotics were prescribed in more than 70-80% of cases [11-14]. An even more “simple” approach to the treatment of patients with COVID-19 pneumonia was demonstrated in the UK, where such patients began to be considered as a variant of community-acquired pneumonia, completely retaining the entire previous treatment package [15]. The stability of the conceptual dogmas of the disease that existed throughout the entire period of antibacterial therapy has not undergone any significant changes, contrary to many prerequisites. However, the growing mass uncertainty about the effectiveness of such treatment and the further decline in results required, at least, the publication of explanatory materials. This, from my point of view, explains the fact that the emergence and development of resistance of microorganisms, which was observed with the beginning of the use of antibiotics and was an obvious fact throughout this period, was officially recognized as one of the world’s largest disasters only at the height of the pandemic [16].

The need for such a belated statement about a long-obvious fact and recognition of it as a disaster was expressed at a time when such a statement was an inevitable measure. In the midst of the dramatic events of the SARS-CoV-2 pandemic, when the inability of modern medicine to provide adequate and reliable care to a huge number of patients with COVID-19 pneumonia (a new version of the AP) turned into an undoubted public fact, an international structure such as WHO, existing at the expense of subsidies, was obliged to demonstrate its awareness of current events and present your vision of the existing difficulties and solutions, while maintaining your own reputation. Unfortunately, as the surrounding reality shows, the main hidden reason for the appearance of such a document was the fact that the almost innate feeling of recent generations to feel protected from infections and inflammation with the help of antibiotics suddenly turned out to be completely lost. For a long time, the illusion that there was a therapeu-

tic panacea suddenly disappeared. A reflection of the growth of depressive moods among professionals during this period was the appearance of a previously unprecedented series of publications on this topic [17-19]. A superficial analysis and one-sided assessment of the phenomenon of antibiotic resistance of microorganisms was only a continuation of existing worldviews regarding the role and significance of this type of therapy in medicine. A critical view is extended only to the side effects of antimicrobial drugs, reflecting short-term difficulties and a primitive solution to their correction without a strategic path to success. Therefore, WHO experts did not find anything more worthy for their proposals than to continue the development and production of "even more effective" drugs [16]. When the presentation of a problem ends with a proposal to continue developing the sources that gave rise to it, comments are unnecessary, and the assessment of modern competence in the problem raised falls even lower. Continuing the previous multi-year race between microflora and pharmaceuticals may, at best, bring a short-term effect, but this will in no way help solve this problem, but, on the contrary, will contribute to its further deepening.

The information and facts presented in the text are a reflection and explanation of the atmosphere that has developed to date in solving the AP problem. Current statements and declarations about which segment of this section of medicine requires priority research and development are the result of unilateral conclusions based on unilateral ideas about the essence of the problem. This narrow concept of the disease continues to determine the overall strategy for solving the problem, despite obvious counterarguments, and cannot lead to an overall improvement in treatment results, as evidenced by the dynamics of these materials over the past decades, despite the efforts made. The main obstacle, without eliminating which it is impossible to count on achieving success in solving the problem of AP, is the need to correct the professional mentality in this section. An example of such an approach to achieving the set goals can be the materials of the work already carried out, the successful and promising results of which are published in the accessible press [20]. The essence of all efforts to find optimal ways to treat patients with AP invariably leads us to the fact that the leading role in this process is occupied by its fundamental foundations, including the functionality of inflamed lung tissue and those biological rules and patterns that cannot be circumvented without harming the patient. In order to present a comprehensive scenario of functional and morphological changes occurring during the development of AP, as well as purposefully, consciously and timely apply the necessary means of assistance that can slow down and eliminate these signs, it is necessary, first of all, to present one's own views on this problem in accordance with the fundamentals of medical science, critically re-evaluating and determining the real location of the pathogen in this process.

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