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Letter to Editor

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Acute Pneumonia: Infection or Disease?

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Letter to Editor

Non-specific forms of Acute Pneumonia (AP) have been known in medicine for a long time, well beyond two millennium. "Pneumonia was described 2,500 years ago by Hippocrates, the father of medicine" [1]. However, could someone state today that this nosology is also well-studied as it is well-known? The comparison of scientific explanation of AP nature and actual results of its treatment shows a lot of contradictions and paradoxes. The substantiated dissatisfaction by the contemporary state of this problem forces one to search the ways of its solution while investing enormously into this work. In this connection, it is recalled that World Health Organization has spent 39 billions of dollars in 2010-2015 years to solve this problem [2]. And where are the results?. During last decades all difficulties and dangers in AP treatment were explained solely by biological aggression of its agents. This valuation, as a rule, is given in current moment, although AP etiology alters from time to time. For example, "Staphilococcal disaster" that happened in 60-70 years of last century "leaved the scene" quietly and today even the most dangerous Staphylococcal variety are rarity in AP etiology. In the years following that, other microorganisms replaced Staphylococcus including forms not previously found among exciters of AP. The current generation of doctors trained "in fear" in front of Streptococcus pneumonia. In this situation, the antibacterial medical assistance was supplemented by total vaccination of the population in developed countries. The results of this campaign also fell short of expectations. "Among children ≤18 years of age, the annual empyema-associated hospitalization rates increased almost 70% between 1997 and 2006, despite decreases in the bacterial pneumonia and invasive pneumococcal disease rates. Pneumococcal conjugate vaccine is not decreasing the incidence of empyema" [3].

Currently, the image of "new" infectious threats arises. "Respiratory viruses, rather than bacterial pathogens, were most commonly detected in children hospitalized with pneumonia". "This ground-breaking study shows how badly we need faster, less-expensive diagnostic tests for doctors to accurately diagnose the cause of pneumonia so they can effectively treat it" [4]. "The results help define the role of viruses as major players in pediatric pneumonia and shows a need for new therapies that can reduce the severity of viral pneumonia," says Chris Stockman, co-investigator and senior research analyst at the University of Utah. "Among children diagnosed with pneumonia, viral infections were much more common than bacterial infections (73 vs. 15%) and Respiratory Syncytial Virus (RSV) was the most commonly detected pathogen". It is significant that the frequency of detection of these viruses in healthy people is not statistically different from their etiological role in acute pneumonia [5]. And today hardly anyone can make precise prognosis about AP etiology for a few following decades.

With that in mind, there are no substantiated explanations in the literature of the following facts:

a) Why does AP, permanent nosology, change its etiology?

b) Why, in spite of so serious and quivering attitude to etiological characterization of AP, are most patients in broad practice treated "at random" without any attempts for clarification of microbe-exciter?

c) What is the real etiology of AP that is treated successfully by "antibiotics alone"?

d) Why is only microbial aggression considered a main reason of complications in complicated forms of disease?

e) Why does AP continue to progress despite undertaken treatment in case of impetuous and severe onset of such process?

f) Why does lung inflammation can reach purulent complications despite undertaken treatment even when no bacteria are present in inflammatory zone according to microbiological examinations?

The answers for these questions as well as tactics and ways of treatment of AP patients will largely depend on solving the main dilemma-What is AP? Is it an illness or an infection? Indeed, according to modern views on AP nature based on the importance and the priority in its appearance and development of bacterial factor, this nosology must be undoubtedly classified as infectious disease.

However, if it corresponds to the reality, then Why:

a) AP is not considered a dangerous contagious form which requires indispensable epidemical measures undertaken in case of many other infections?

b) Epidemics of nonspecific forms of AP are not known to medical science; however, the number of AP patients increases, as

a rule, in time of viral infections' outbreak and also depends upon ecological, climatic, seasonal and even social factors?

c) This nosological form does not have unified and constant etiology?

d) AP agents are included in symbiotic microflora of completely healthy people?

At the same time, it is important to note that AP has always been and still is examined among lung diseases and, with the exception of its specific forms, is not included in the category of infectious diseases. However, if AP by its very nature is an illness and not an infection, then Why:

a) This nosology still does not have the most important characteristic – the detailed pathogenesis, i.e., the description of chain of inter-connected various processes and transformations in AP patient from the onset of AP?

b) Gravity of AP manifestation and development of its complications are explained exclusively by characteristics of its various agents?

c) During the last decades, "antibiotics alone" has remained the main way of treating AP as if infection is the only problem?

Today the importance of bacterial factor in the appearance and progress of AP is not only clearly exaggerated, but is represented as absolute without proper justification. At the same time, a wellknown knowledge about inflammatory mechanisms is not taken into consideration and not used to solve this problem. Moreover, it is a well-known fact that the axiom of each bacterial inflammation is a conflict between micro- and macro-organisms. In case of non-specific inflammation, when AP agents can be representatives of patient's own micro flora, it is especially important and necessary to understand the role of microorganism in this conflict. Furthermore, the significance of a third participant of this conflict- different ways of medical influence – should also be taken into consideration.

All aforementioned questions and tasks were the reason of my investigations which I started more than 30 years ago when I had witnessed the "incurable" forms of AP in my medical practice. The high number of very sick patients in our clinic, the progress of the disease despite intensive universal treatment and high mortality rate (up to 10% and more) compelled us to seek solution to this situation. And although due to certain circumstances, I was not able to implement all my plans, I have proven the ability to stop the development of even the most aggressive forms of AP, avoid complications and reduce the length of stay in hospital. Unfortunately my major publications that contain research and practical results were published only in Russian until the last year. This year I was lucky enough to publish on the problem of acute pneumonia a number of articles in international journals .A full view of my results is given in the book [6].

I continue to monitor the condition of this problem in the world. However, the evaluation of the current situation in this section of clinical medicine looks hopeless and her improvement is very uncertain. "Pneumonia is a leading cause of hospitalization among children in the United States, with medical costs estimated at almost $1 billion in 2009. Despite this large burden of disease, critical gaps remain in our knowledge about pneumonia in children" [7]. "The rates of parapneumonic effusion have been increasing in the USA and Europe over recent years and it is now encountered in approximately 40% of all patients with bacterial pneumonias" [8]."Pediatric pleural empyema has increased substantially over the past 20 years and reasons for this rise remain not fully explained" [9]. "Pneumonia puts thousands of young children in the hospital each year at a cost in the U.S. of about $1 billion, not to mention suffering of kids and hardship for their families" [4]. These quotations reflect the current state of the problem under the world's best health systems.

Therefore, I'd like to share with you the following conclusions I have reached based on my experience and research:

a. AP in children is a polyetiological disease with its own original pathogenesis of development.

b. Nonspecific AP agents are only one of its starting factors, but in no way they are the main reason of progress of inflammatory process and development of its complications

c. The chain of consecutive typical alterations of the local and general nature lays at the basis of AP pathogenesis and its maximum degree of development depends, first of all, on the reactivity of the patient's organism and direction of the medical care

d. In case of relatively slow development of the inflammatory focus in lung (normo- and hypoergic tipes), "antibiotics alone" proves to be enough for most patients which later in the process allows the protective-adaptive mechanisms of the organism to control the illness

e. In case of impetuous beginning of AP, etiotropic treatment (antibiotic therapy) does not and cannot influence the intensively developing pathogenetic mechanisms. At the same time, the supplementary medical methods may not only, depending on their direction of influence towards AP pathogenetic mechanisms, stop the inflammatory focus development and contribute to its rapid elimination, but also stimulate the strengthening of the disease.

I hope that this letter will help my colleagues to view the problem of AP treatment from a different perspective. This information can be particularly helpful and important in cases when undertaken medical efforts don't bring the desired result.

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