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What has Changed in the Perception of Sepsis Over the Past 30 Years?

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ABSTRACT

This review article presents information about the new pathogenetic mechanisms of surgical sepsis. Over the past 30 years, there have been great changes in the knowledge of surgical sepsis. Meanwhile, publications on the problem of sepsis state that the informational significance of the syndrome of a systemic inflammatory reaction (leukocytosis/leukopenia, hyperthermia/hypothermia, tachycardia, tachypnea), unfortunately, remains very low, since it cannot determine the nature of the fatal situations that occur.

Keywords: Surgical sepsis, systemic inflammatory response syndrome, pathogenesis of sepsis

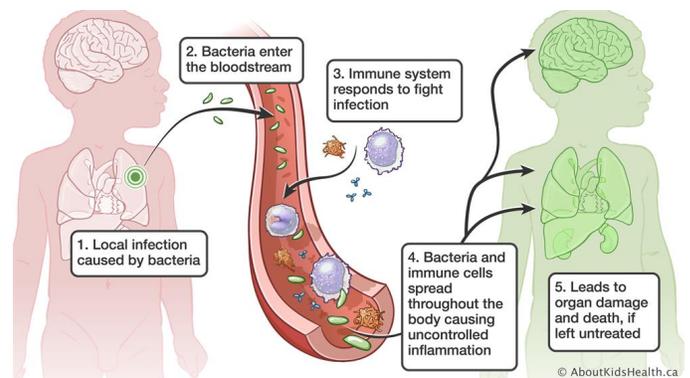
The last decade of the last century was marked by great achievements and discoveries in understanding sepsis's pathogenesis [1].

Scientists have come to understand the superior role of macroorganism reactivity in the pathogenesis of sepsis rather than the virulence of the microorganism [2, 3].

The role of the infectious principle has ceased to be leading, since the general reaction of the body truly reflects the full scale of the changes taking place. This conclusion was presented in 1991 at the conciliation conference of the American College of Pulmonology and the Society of Critical Medicine Specialists, which was held in Chicago [5-7]

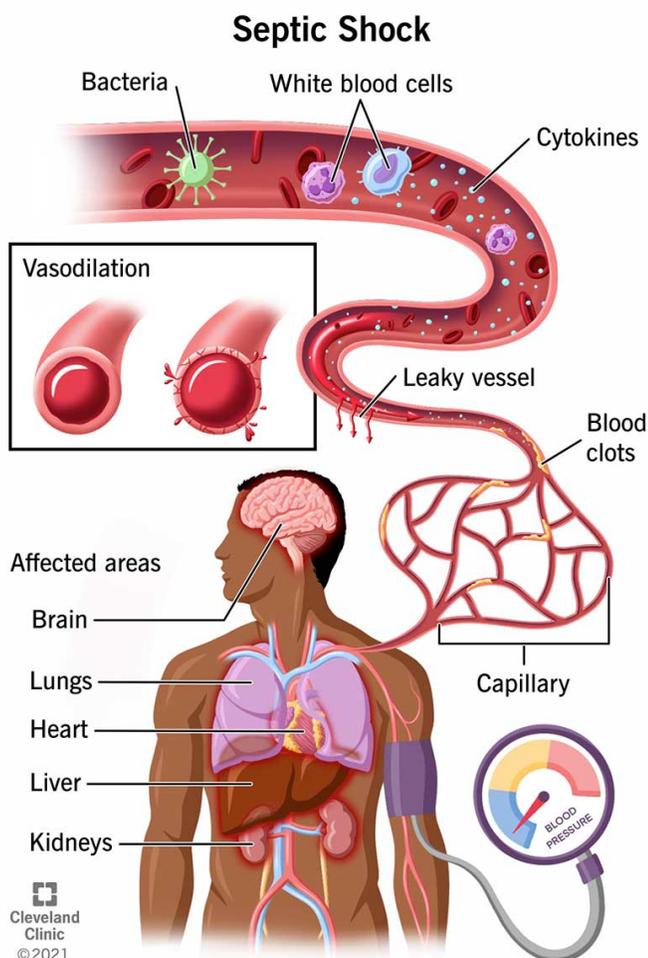
The conference agreed on terminology. In particular, it has been determined that sepsis is a pathological

process, which is based on the body's reaction in the form of generalized inflammation to an infection of various nature [4].



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The criteria for making this diagnosis were also agreed. These criteria are widely used in clinical practice and in scientific and multicenter studies [8, 9].



30 years have passed since the adoption of the conciliation conference on the new terminology of sepsis. What has changed since then?

Unfortunately, to date, there are still many unresolved issues in many positions in the definition of the terminology of this pathological condition [10-12].

There is a frequent contradiction of experts on this issue. One of the first controversies was the emergence of terms such as sepsis and septic shock [13, 14].

New, sometimes contradictory to the old foundations, criteria for verifying the pathological process were proposed. [96]

The polymorphism of the pathological processes occurring in sepsis, and even more so of its clinical manifestations, creates difficulties for clinicians in verifying exactly the facet that determines the transition of the local process to the general one [15, 16].

At the same time, in real clinical practice, there are still no objective criteria for making a correct diagnosis. Analysis of the literature data showed that in most cases various approaches and attitudes are used, which have been formed over several years of work on this problem [17, 18].

However, the problem was studied and repeated meetings of leading organizations on surgical infection and intensive care came to a new agreement, which is now referred to as "Sepsis-3" [33, 34, 35].

The Working Group identified a number of tasks that needed to be agreed upon. It was agreed that sepsis is not an independent nosology [19, 20].

It has also been determined that sepsis as a syndrome is characterized by specific nonspecific clinical and laboratory symptoms, and its whole problem lies in the early detection of an infectious onset [21, 22].

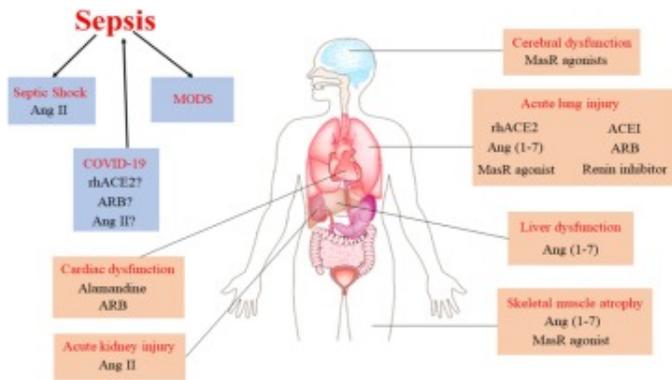
It was agreed that there are still no criteria for ascertaining sepsis that could be taken as a "gold standard" [23, 24].

It is also noted that when developing criteria for verifying sepsis, it is necessary to take into account such positions as the response of the macroorganism, organ dysfunction/insufficiency and, of course, the presence of the infection itself [25, 26].



At the same time, it was noted that all these assessment methods should be quite simple and accessible for

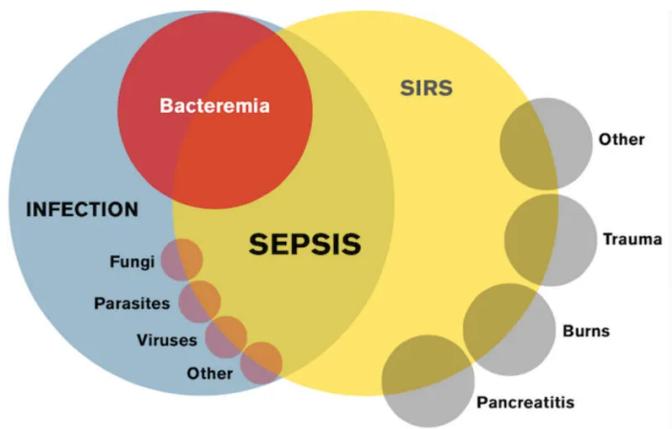
clinical practice (both for the prehospital and hospital stages) [27, 28].



There is sufficient evidence indicating the possibility of early activation of the inflammatory response, both pro-inflammatory and anti-inflammatory [29, 30].

At the same time, all systems of vital organs, neuro-humoral link, metabolism and bioenergy, and coagulation system are actively involved in this process. All of them make a significant contribution to the criteria for predicting sepsis [3, 19, 35, 43].

Another difficult aspect in determining the nature of sepsis is the dependence of its development on factors such as gender, age, race, genetic factors, the nature of the comorbidity, as well as "therapeutic aggression", including surgical interventions and certain medications [22, 23, 31].



Such a wide range of pathological manifestations also affects the complexity of conducting experimental studies on the problem of studying the pathogenesis of sepsis, since it is almost impossible to take into account all these multipolar factors.

Meanwhile, publications on the problem of sepsis state that the informational significance of systemic inflammatory response syndrome (leukocytosis/leukopenia, hyperthermia/hypothermia, tachycardia, tachypnea),

unfortunately, remains very low, since it cannot determine the nature of fatal situations [30, 31, 39].

R. Bone wrote about this back in 1996 [3].

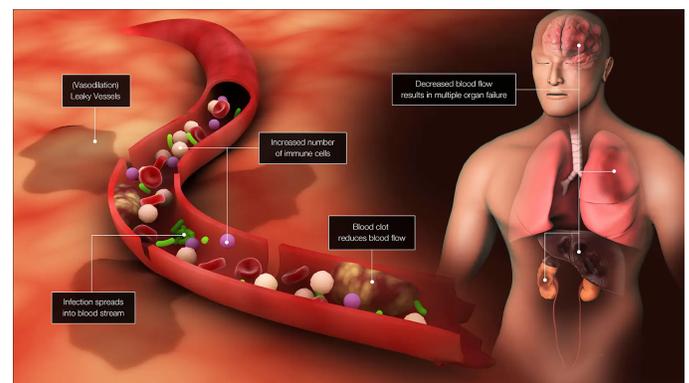
It is in this publication devoted to the pathogenesis of understanding the syndrome of systemic inflammatory response as a multivariate reaction of inflammatory mediators. So he concluded that it remains extremely difficult to detail the status of a particular patient at a particular point in time since the situation is characterized by its randomness.

A quarter of a century later, scientists have not found the ability to adequately reproduce either the experimental model or the conditions for computer modeling of the syndrome of the systemic inflammatory response, which could correspond to the clinical conditions of development.

Systemic inflammatory response syndrome is one of the possible variants of the macroorganism's response to the development of infection. Accordingly, sepsis in this situation is not a progressive systemic inflammation, but a life-threatening dysregulation of the response to infection [39].

Experts also note that the term "sepsis" is an overly broad concept that is used in relation to a very complex and not fully understood pathological process.

It is concluded that there are still no specific clinical and biochemical criteria that allow screening patients with sepsis in order to differentiate from patients who do not have an infectious onset.



Under these conditions, it is obvious that the new definitions are not comprehensive and definitive, they only offer practitioners, researchers, administrators and insurance companies a new harmonized terminology and criteria for diagnosis from the standpoint of modern knowledge. It is not surprising that the new positions, based on the opinions of experts, caused a lot of criticism, comments and discussions [24].

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SO‘NGGI 30 YIL MOBAYNIDA SEPSIS HAQIDA- GI TASAVVURDA NIMALAR O‘ZGARDI?

Bobobekov A.R.

Toshkent tibbiyot akademiyasi

ABSTRAKT

Ushbu maqolada jarrohlik sepsisning yangi patogenetik mexanizmlari haqida ma'lumotlar keltirilgan. So‘nggi 30 yil ichida xirurgik sepsis ilmida katta o‘zgarishlar yuz berdi. Ayni paytda sepsis muammosiga oid adabiyotlarda tizimli yallig‘lanish reaksiyasi sindromining (leykotsitoz/leykopeniya, gipertermiya/ gipotermiya, taxikardiya, taxipnoe) axborot ahamiyati juda pastligicha qolayotgani qayd etilgan. Afsuski, u sodir bo‘ladigan o‘limga olib keladigan holatlarning mohiyatini aniqlay olmaydi.

Tayanch iboralar: Xirurgik sepsis, tizimli yiringli javob sindromi, sepsisning patogenezi

ЧТО ИЗМЕНИЛОСЬ В ПРЕДСТАВЛЕНИИ О СЕПСИСЕ ЗА ПОСЛЕДНИЕ 30 ЛЕТ?

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АБСТРАКТ

В данной обзорной статье представляются сведения о новых патогенетических механизмах хирургического сепсиса. За последние 30 лет в познаниях о хирургическом сепсисе произошли большие перемены. Между тем публикации по проблеме сепсиса констатируют, что информационная значимость синдрома системной воспалительной реакции, (лейкоцитоз/лейкопения, гипертермия/ гипотермия, тахикардия, тахипноэ), к сожалению, остается весьма низкой, так как она не может определить природу происходящих фатальных ситуаций.

Ключевые слова: Хирургический сепсис, синдром системной воспалительной реакции, патогенез сепсиса