

The Mnemonic “SEPSIS” in diagnosis and treatment of sepsis?

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Abstract

Sepsis is the most common diagnostic and therapeutic terminology in the field of infectious diseases. Till date, three sepsis definition are proposed, but there are still some vague issues in this area. One of the actions in order to make simple the approach to the sepsis, was the introducing of Mnemonic “SEPSIS”, however, even its accuracy is not clear.

Key words: Sepsis, Mnemonic, “SEPSIS”

Sepsis previously was described as a “systemic inflammatory response” to a confirmed or suspected infection based on “SIRS criteria” which is the occurrence of at least two of the following criteria: fever $>38.0^{\circ}\text{C}$ or hypothermia $<36.0^{\circ}\text{C}$, tachycardia >90 beats/minute, tachypnea >20 breaths/minute, leukocytosis $>12000/\text{mm}^3$ or leukopenia $<4000/\text{mm}^3$ or Band $>10\%$. (1,2). It means some cases of sepsis could present without two elements of that criteria, even in the presence of clear infection.

On 2016, The “Third International Consensus Definitions for Sepsis and Septic Shock” created new definition of sepsis (sepsis 3). In the new definition, sepsis is a syndrome defined as “an inappropriate response of the host immune system to infection causing life-threatening organ dysfunction”. (3)

Early recognition and timely treatment are crucial and associated with improved outcomes in sepsis patients, however the sepsis presentation is not always classic. 4 especially in the elderly or immunocompromised patients, sepsis symptoms might be vague. (4)

The Global Sepsis Alliance is a non-profit charity organization with the mission to provide global leadership to reduce the worldwide burden of sepsis. The GSA was founded at the Merinoff Symposium, which was hosted by the Feinstein Institute, in 2010 with the aim to raise awareness for sepsis worldwide and reduce sepsis deaths by 20% by 2020. They established the first World Sepsis Day as a platform for sepsis declaration with the goals of raising public awareness of sepsis and improving the quality of sepsis management. (5) They created the mnemonic “SEPSIS” simpler recall of sepsis symptoms. (6) Their suggested Mnemonic, was mainly diagnostic. A part from that, another diagnostic definition also has been proposed (table1). In addition, there is a therapeutic Mnemonic “SEPSIS” has been created including SOFA score Early recognition, Protocols, Start treatment right away, Improve outcomes, Share results.

To date, the Mnemonic “SEPSIS” has not been appreciated in medical literature. Kanokpit Wattanapaiboon et al. conducted a retrospective, observational, single-center study to evaluate the presenting symptoms of septic Thai patients compared with the mnemonic “SEPSIS”. In their study, elements E (extreme shivering or muscle pain, fever) and S (severe breathlessness) were the two most often reported. The two items in the mnemonic had been rarely reported: it feels like you are going to die and skin mottled or discolored. They found that nearly 15% of sepsis patients had none of the symptoms represented by the mnemonic. (7)

In conclusion, low threshold of sepsis suspicion especially in elderly and immunocompromised patients who come with vague signs and symptoms of infection. The usefulness of the mnemonics “SEPSIS” is still cloudy.

Table 1: Mnemonics “SEPSIS”

Global sepsis Alliance Mnemonic	Alternative Mnemonic
Slurred speech or confusion	Sleepy, difficult to wake up, or confused: Altered Mental Status (any GCS less than 15)
Extreme shivering or muscle pain, fever	Expiring and inspiring too much: RR>20 or PaCO ₂ <32 / Edema or positive fluid balance (>20 mL/kg over 24 hours)
Passing no urine all day	Pulse >90 / pressures <90
Severe breathlessness	Shivering (cold) or Fever: T >38.3 or <36
It feels like you are going to die	Inflammatory markers: 1) WBC >12000 or <4000 or normal WBC but >10% bands; 2) CRP/PCT > 2 SD above normal
Skin mottled or discolored.	Sugars are elevated: plasma glucose >140 mg/dL or 7.7 mmol/L in the absence of diabetes

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