Definizione ed identificazione

della sepsi

Special Communication | CARING FOR THE CRITICALLY ILL PATIENT

The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

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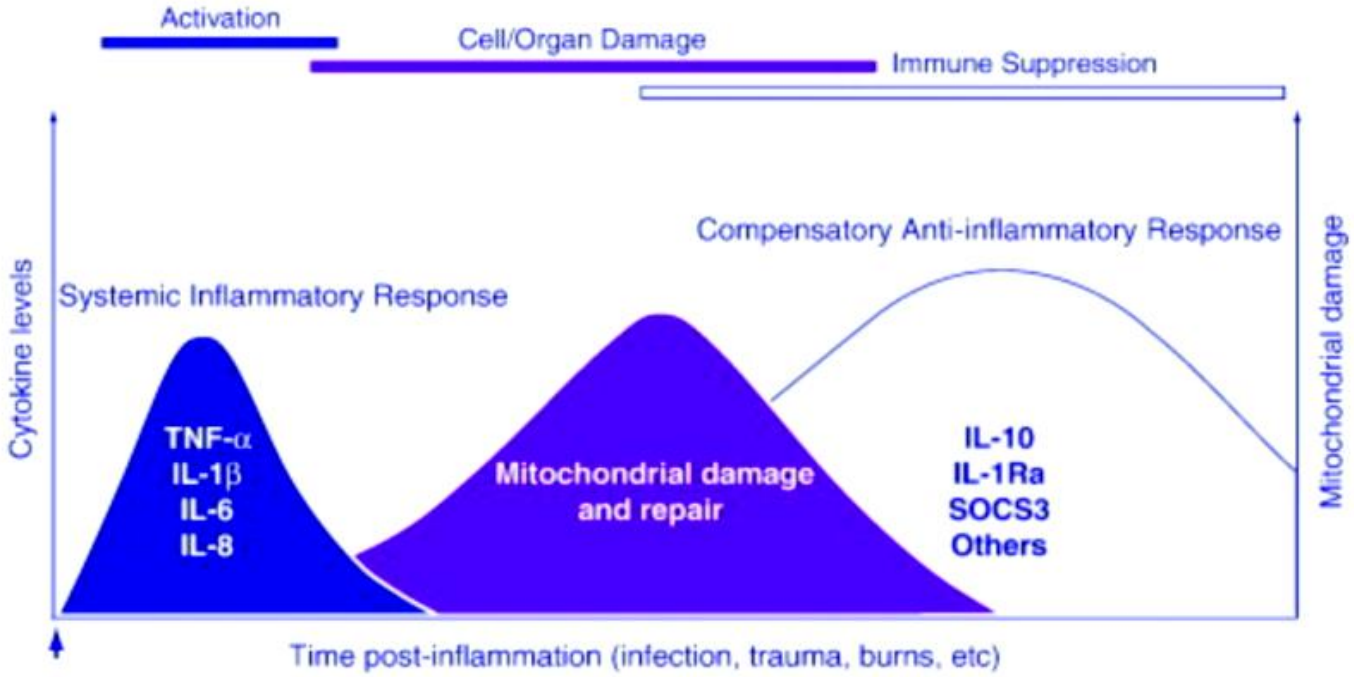
JAMA. 2016;315(8):801-810.

Definizione di **sepsi**

Di cosa parliamo

- Infezione: invasione da parte di microorganismi patogeni nei tessuti (sterili ma non solo) con reazione infiammatoria locale

- Sepsi: risposta dell'organismo ospite aberrante e disregolata ad una infezione, con comparsa di disfunzione d'organo


Activation
Cell/Organ Damage
Immune Suppression
Compensatory Anti-inflammatory Response
Systemic Inflammatory Response
Cytokine levels
Mitochondrial damage
TNF-α
IL-1β
IL-6
IL-8
Mitochondrial damage
and repair
IL-10
IL-1Ra
SOCS3
Others
Time post-inflammation (infection, trauma, burns, etc)

La diagnosi di **sepsi** rimane difficile.

Ciò è dovuto principalmente all'ampia variabilità della presentazione clinica, che dipende:

- dalla sede del focolaio infettivo iniziale
- dal micro-organismo coinvolto
- dal momento in cui viene valutato il paziente
- dalle sue specifiche caratteristiche, quali comorbidità e terapie croniche

- “**Sepsis** is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection”

- “organ dysfunction” è rappresentata da un incremento del SOFA score rispetto al valore basale ≥ a 2. Se questo non è noto, si assume che sia 0 (zero). Pazienti in questa categoria presentano una mortalità del 10% circa.

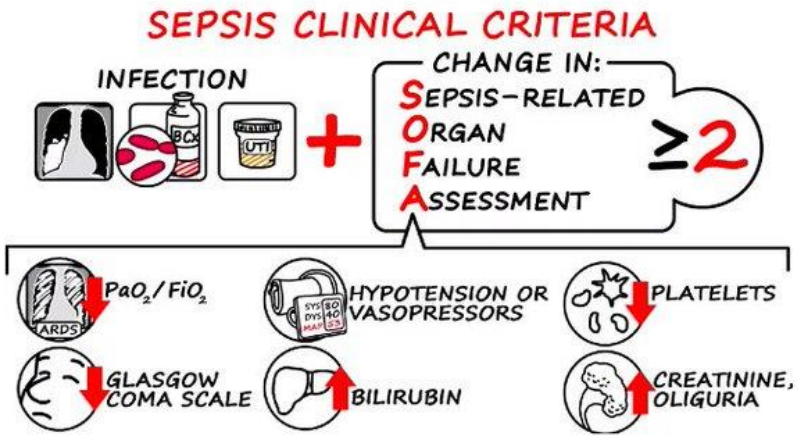


Table 1. Sequential [Sepsis-Related] Organ Failure Assessment Score[a]

System	Score 0	1	2	3	4
Respiration					
Pa_{O_2}/Fi_{O_2}, mm Hg (kPa)	≥400 (53.3)	<400 (53.3)	<300 (40)	<200 (26.7) with respiratory support	<100 (13.3) with respiratory support
Coagulation					
Platelets, $\times 10^3/\mu L$	≥150	<150	<100	<50	<20
Liver					
Bilirubin, mg/dL (μmol/L)	<1.2 (20)	1.2-1.9 (20-32)	2.0-5.9 (33-101)	6.0-11.9 (102-204)	>12.0 (204)
Cardiovascular	MAP ≥70 mm Hg	MAP <70 mm Hg	Dopamine <5 or dobutamine (any dose)[b]	Dopamine 5.1-15 or epinephrine ≤0.1 or norepinephrine ≤0.1[b]	Dopamine >15 or epinephrine >0.1 or norepinephrine >0.1[b]
Central nervous system					
Glasgow Coma Scale score[c]	15	13-14	10-12	6-9	<6
Renal					
Creatinine, mg/dL (μmol/L)	<1.2 (110)	1.2-1.9 (110-170)	2.0-3.4 (171-299)	3.5-4.9 (300-440)	>5.0 (440)
Urine output, mL/d				<500	<200

Abbreviations: Fi_{O_2}, fraction of inspired oxygen; MAP, mean arterial pressure; Pa_{O_2}, partial pressure of oxygen.

[a] Adapted from Vincent et al.[27]

[b] Catecholamine doses are given as μg/kg/min for at least 1 hour.

[c] Glasgow Coma Scale scores range from 3-15; higher score indicates better neurological function.

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- Septic shock is a subset of sepsis in which underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality.
- Patients with septic shock can be identified with a clinical construct of sepsis with persisting hypotension requiring vasopressors to maintain MAP ≥65 mm Hg and having a serum lactate level >2 mmol/L (18 mg/dL) despite adequate volume resuscitation. With these criteria, hospital mortality is in excess of 40%.

JAMA. 2016;315(8):801-810.

Il paziente in shock settico viene clinicamente identificato per la presenza di sepsi cui si associano:

- Persistente ipotensione con necessità di impiego di vasopressori per mantenere MAP ≥ 65 mmHg

e

- Lattato sierico ≥ 2 mmol/l (≥18 mg%)

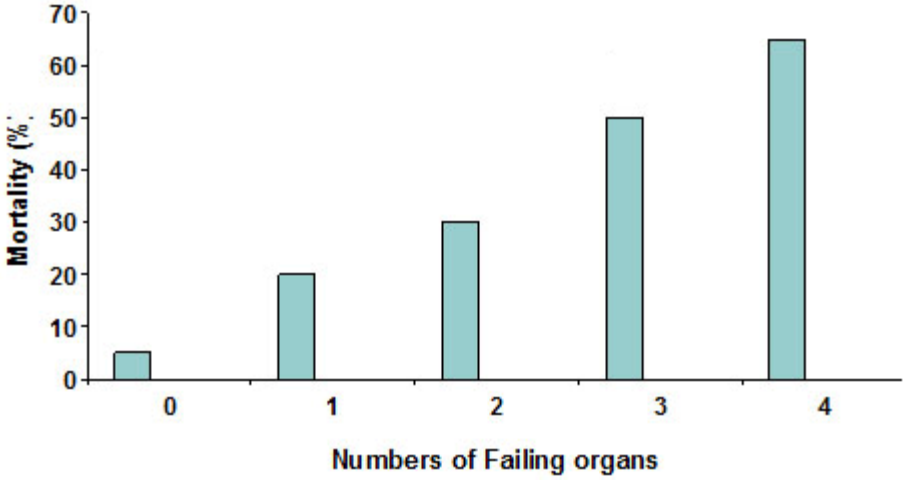
nonostante un adeguato riempimento volemico

Questa definizione tiene conto dei due aspetti fisiopatologici più caratteristici dello shock:

- l'insufficienza circolatoria che si manifesta con l'ipotensione che non risponde al riempimento volemico

- l'alterazione del metabolismo cellulare, di cui l'incremento della concentrazione sierica di lattati è un marcatore.

La mortalità ospedaliera per shock settico è maggiore del 40%



Quick SOFA

Fuori dall’ospedale, al P.S. o nelle corsie dell’Ospedale, possiamo utilizzare un sistema molto rapido e semplice per “intercettare” il paziente con infezione potenzialmente in “sepsi”

Il qSOFA è “positivo” se almeno due dei seguenti criteri sono soddisfatti:

- Frequenza respiratoria ≥ 22 atti/min
- Alterazione dello stato di coscienza
- Pressione arteriosa sistolica ≤ 100 mmHg

Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016

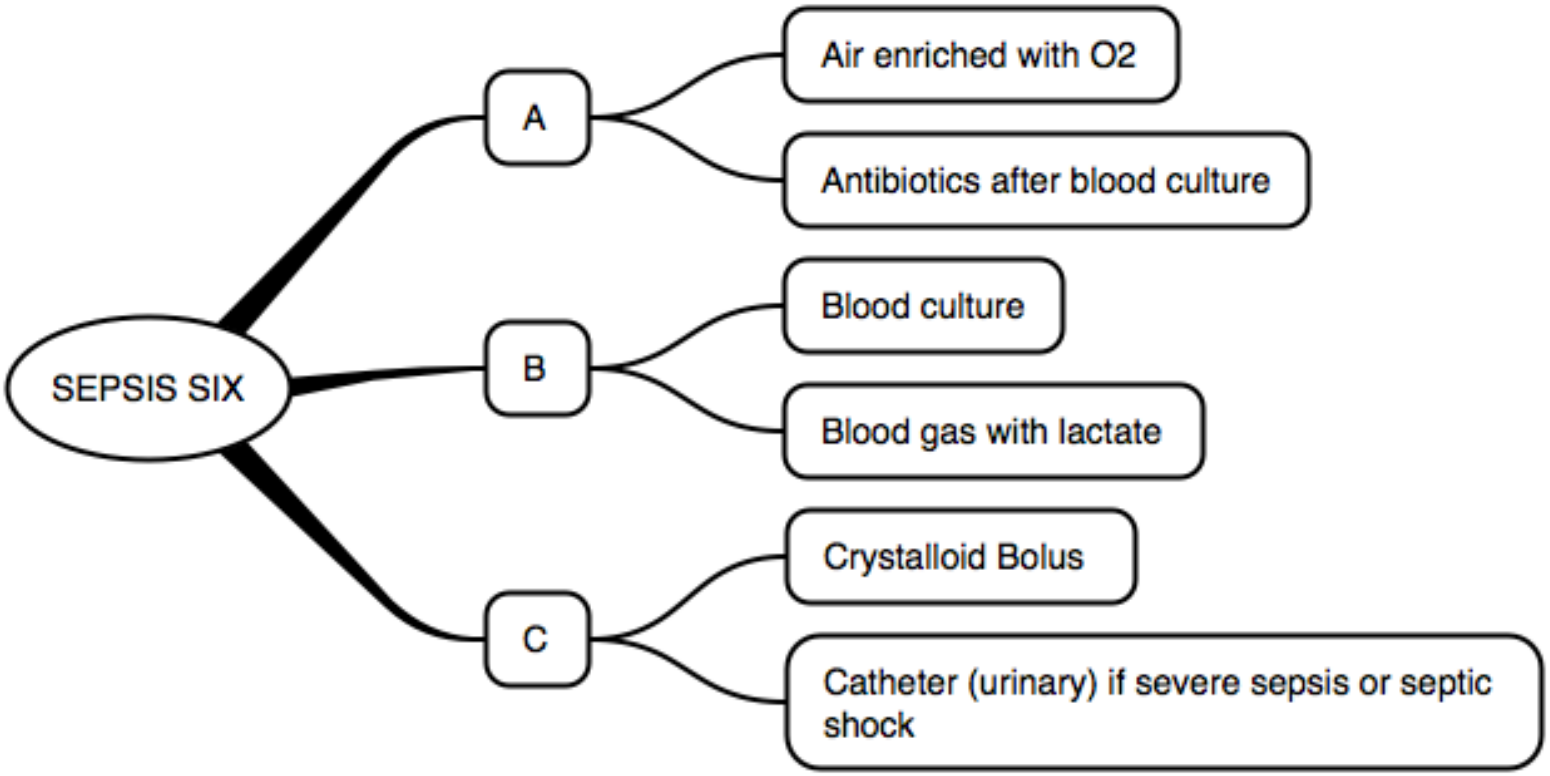
Similar to polytrauma, acute myocardial infarction, or stroke, early identification and appropriate management in the initial hours after sepsis develops improves outcomes.

INTENSIVE CARE MEDICINE

Crit Care Med. 2017 Jan 17.

Intensive Care Med. 2017 Jan 18.

Sepsis six within the first hour can half mortality



The sepsis six and the severe sepsis resuscitation bundle: a prospective observational cohort study

Daniels R, Nutbeam T, McNamara G, *et al*

Emergency Medicine Journal 2011;**28**:507-512.

Emergency Medicine Journal BMJ Journals

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Delivery of the interventions & reduced mortality

- **For the sepsis six 20.0% compared with 44.1% ($p < 0.001$)**
- **For the resuscitation bundle, 5.9% compared with 51% ($p < 0.001$)**

Those patients receiving the sepsis six were much more likely to receive the full bundle.

Those seen by the sepsis team had improved compliance with bundles and reduced mortality.

Box 2. Key Concepts of Sepsis

- Sepsis is the primary cause of death from infection, especially if not recognized and treated promptly. Its recognition mandates urgent attention.
- Sepsis is a syndrome shaped by pathogen factors and host factors (eg, sex, race and other genetic determinants, age, comorbidities, environment) with characteristics that evolve over time. What differentiates sepsis from infection is an aberrant or dysregulated host response and the presence of organ dysfunction.
- Sepsis-induced organ dysfunction may be occult; therefore, its presence should be considered in any patient presenting with infection. Conversely, unrecognized infection may be the cause of new-onset organ dysfunction. Any unexplained organ dysfunction should thus raise the possibility of underlying infection.
- The clinical and biological phenotype of sepsis can be modified by preexisting acute illness, long-standing comorbidities, medication, and interventions.
- Specific infections may result in local organ dysfunction without generating a dysregulated systemic host response.

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