Procalcitonin: a new biomarker for the clear indications of

- Systemic bacterial infections
- Severe Sepsis
- Septic Shock

Rapid results in 20 minutes

One more piece to the SEPSIS puzzle
ONE MORE CONFIDENT DECISION

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- Systemic bacterial infections
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Rapid results in 20 minutes
Early detection and appropriate clinical intervention is pivotal for improving outcomes in patients threatened by sepsis. However, differentiating sepsis from other, non-infectious diseases can be difficult in patients with clinical signs of acute inflammation, including SIRS (systemic inflammatory response syndrome).

VIDAS® B·R·A·H·M·S PCT can help by providing additional, specific information that can help clinicians make more informed decisions and increase the accuracy of early sepsis diagnosis.

A Novel Biomarker of Sepsis Risk and Severity

PCT increase reflects the continuous development from a healthy condition to the most severe disease states. PCT levels in sepsis are generally greater than 0.5 – 2 ng/mL and rise in response to increasing sepsis severity.
Increased Diagnostic and Prognostic Value
- Procalcitonin (PCT) is the only laboratory parameter shown to have made a significant contribution to the clinical diagnosis of sepsis.\(^1\)
- Compared to CRP (C-reactive protein) PCT has shown better differentiation of bacterial infection from non-infectious causes of inflammation.\(^3\)
- Compared to serum lactate, PCT has shown to be far more predictive for sepsis.\(^2\)
- PCT has been shown to provide more accurate assessment of sepsis severity than CRP,\(^4\) as well as being more predictive than CRP of severe septic complications\(^5\) and sepsis mortality risk in critically ill patients.\(^6\)

PCT has demonstrated diagnostic performance superior to that of other markers for sepsis.\(^2\)

Rapid, Specific Response
- PCT is distinguished from other markers by its early and highly specific increase in response to severe systemic bacterial infections and sepsis.\(^1,2\)
- Increased PCT levels can be observed within just 3 – 6 hours after an infectious challenge.
- 24-hour half-life: PCT decline is consistent with an improving clinical condition.

PCT’s unique kinetics following a bacterial challenge make it a rapid and specific marker of sepsis.\(^8\)
Addressing a Critical Need

Sepsis threatens as many as 750,000 patients in U.S. hospitals each year — approximately 200,000 of whom do not survive. The need for more effective strategies to help manage sepsis is urgent. As a marker of systemic bacterial infection and sepsis, Procalcitonin (PCT) can play a critical role in addressing this clinical challenge.

Clinicians should always interpret PCT values in the clinical context of the patient. Increase in PCT reflects the continuous development from a healthy condition to the most severe consequences of bacterial infection (severe sepsis and septic shock). Therefore, optimal cut-off values for PCT are variable and dependent on factors such as the clinical setting, the site and extent of the infection, and the presence of co-morbidities.

Limitations

Increased PCT levels may not always be related to systemic bacterial infection. Several situations have been described where PCT can be elevated by non-bacterial causes. These include, but are not limited to:

- neonates < 48 hours of life (physiological elevation)
- the first days after a major trauma, major surgical intervention, severe burns, treatment with OKT3 antibodies and other drugs stimulating the release of pro-inflammatory cytokines
- patients with invasive fungal infections, acute attacks of Plasmodium falciparum malaria
- patients with prolonged or severe cardiogenic shock, prolonged severe organ perfusion anomalies, small cell lung cancer, medullary C-cell carcinoma of the thyroid.

Low PCT levels do not automatically exclude the presence of bacterial infection. Such low levels may be obtained, during the early course of infections, in localized infections and in subacute endocarditis. Therefore, followup and re-evaluation of PCT in clinical suspicion of infection is pivotal. The PCT measuring technique should be chosen according to clinical use.

References

4. Meisner M, Tshaikowsky K, Palmaers T, Schmidt J. Comparison of procalcitonin (PCT) and C-reactive protein (CRP) plasma concentrations at different SOFA scores during the course of sepsis and MODS. Crit Care. 1999;3:45-50.

VIDAS® Emergency Panel

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bioMérieux, Inc.
100 Rodolphe Street
Durham, NC 27712
U.S.A.
Tel.: (800) 682 2666
Fax: (800) 968 9494

bioMérieux Canada, Inc.
7815 Henri-Bourassa Boulevard West
Ville St. Laurent (Quebec)
Canada
Tel.: (1) 514 366 7321
Fax: (1) 514 336 6450

www.biomerieux-usa.com/knowfromday1