

Fact Sheet



Hemostasis parameters as prognostic markers in COVID-19 patients

Is there a relationship between COVID-19 and hemostasis?

A recent article by Lippi and Plebani provides an overview on the most frequent laboratory abnormalities encountered in patients with COVID-2019 infection.¹ In their publication they mention that: *“The currently available data suggests that many laboratory parameters are deranged in patients with COVID-19, and some of these may also be considered significant predictors of adverse clinical outcomes.”*

Main laboratory abnormalities in patients with unfavorable progression of COVID-19

(modified from Lippi and Plebani¹)

Product Line	Parameter	Lab abnormalities
Hemostasis	D-dimer	↑
	Prothrombin time (PT)	↑
Hematology	White blood cell count	↑
	Neutrophil count	↑
	Lymphocyte count	↓
Clinical Chemistry	C-reactive protein (CRP)	↑
	Albumin	↓
	Lactate dehydrogenase (LDH)	↑
	Alanine aminotransferase (ALT)	↑
	Aspartate aminotransferase (AST)	↑
	Total bilirubin	↑
	Creatinine	↑
Cardiac	Cardiac troponin	↑
Inflammation	Procalcitonin (PCT)	↑

Another publication mentions the observation, that coagulation parameters, and especially values for PT, D-dimer and FDP were found to be more frequently higher in those COVID-19 hospitalized patients that died than in survivors.²

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Furthermore, a recent publication identified three major risk factors for a critical prognosis of patients with COVID-19

- older age
- high SOFA score
- D-dimer greater than $1\mu\text{g/L}$ (FEU)³

SOFA is an acronym for Sequential Organ Failure Assessment. The SOFA score is a medical score that is used to evaluate patients in intensive care units. The score is used to assess the degree of organ dysfunction and thereby determine the mortality risk. It is considered a reliable marker of sepsis.

The study is based on a retrospective, multicenter cohort analysis of adult inpatients with COVID-19 from Jinyintan Hospital and Wuhan Pulmonary Hospital. The study lists the most important risk factors for an unfavorable prognosis to be older age, lymphopenia, leucocytosis and increased ALT, LDH, high-sensitive cardiac troponin I, creatine kinase, D-dimer, serum ferritin, IL-6, prothrombin time (PT), creatinine and procalcitonin. The authors conclude that older age, higher SOFA score, and elevated d-dimer were risk factors that could help clinicians to identify patients with poor prognosis at an early stage.³

Summary

Based on various laboratory observations some authors conclude that the assessment of hemostasis tests and especially D-dimer shall be considered a routine part of COVID-19 patient monitoring.¹

[Click here to open the D-dimer handout](#)

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HumaClot Junior	HumaClot Duo Plus	HumaClot Quattro	HumaClot Pro
REF 18680	REF 15650	REF 15660	REF 15800

Literature

1. Lippi G, Plebani M. Laboratory abnormalities in patients with COVID-2019 infection. Clin Chem Lab Med 2020 Feb 24. doi: 10.1515/cclm-2020-0198
2. Tang N, Li D, Wang X, Sun Z. Abnormal coagulation parameters are associated with poor prognosis in patients with novel coronavirus pneumonia. J Thromb Haemost 2020 Feb 19. # doi: 10.1111/jth.14768. [Epub ahead of print].
3. Fei Zhou et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet 2020 March 9. doi: 10.1016/S0140-6736(20)30566-3