

Blood Test Indices for COVID-19 Patient Management

	Test Parameter	Reference Interval	Symptom* Onset	Admission	Hospitalization		Discharge**		
			9 days (median)		12 days (median)		(Reference from COVID-19 Designated Hospitals, China)		
WBC	White blood cells (WBC)		Normal, or slightly elevated		Survivals	Shifting with slight increase within the reference range ¹			
					None-survivals	Exceeding the upper reference range ¹			
	Lymphocyte number (Lym#)					Survivals	Progressively decreasing, then rising back during recovery.		
						None-survivals	Persistent decrease, fluctuating at low level (below 0.8 x10 ⁹ /L) ¹		
				In Mindray COVID-19 retrospective study, AI acquired Lym# & RDW-SD parameter (unpublished, requiring further verification) > 0.794 could predict severe progression.					
	Monocyte number (Mon#)			Normal, or slightly decreased		Monocyte deform to phagocyte, engulfing virus. In the deterioration process, Mon cell cluster appears some sudden change in SF CUBE (Mindray unpublished retrospective study).			
	Neutrophil number (Neu#)			Normal, or slightly elevated		Survivals	Progressively increasing, rising slowly within the reference range ¹		
						None-survivals	Progressively increasing, exceeding the upper reference range ¹		
Eosinophil number (Eos#)			Normal, or slightly decreased		Progressively decreasing, some will fall out of the lower reference range ³				
High fluorescent Cell number (HFC#)			Normal, or slightly increased		Some results will be flagged with atypical lymphocyte.				
Neutrophil-to-lymphocyte ratio (NLR)			Normal, or slightly increased						
NLR & RDW-SD			Normal, or slightly increased		Patients with NLR & RDW-SD > 1.06 can be classified as the severe progression for more intervention therapy ⁴				
RBC / RET	Reticulocyte number (Ret#)		Normal, or slightly increased, could decrease in severe cases		Severe and critically ill patients will have high Ret count and IRF (Mindray unpublished retrospective study).				
	Immature Reticulocyte Fraction (IRF)								
	Hemoglobin (HGB)		Normal, or slightly decreased		Progressively decreasing, then rising back during recovery				
	Red blood cell distribution width – standard deviation (RDW-SD) ⁵		Normal, or slightly increased		Progressively increasing, can be combined with other parameters for severity identification or prediction.				
PLT	Platelet count (PLT)		Normal, or slightly increased, could decrease in severe cases		In the well-controlled cases, PLT rises progressively, then declining during recovery				
					Decreasing with septic deterioration ⁶ , then rising back during recovery				
	Platelet Distribution Width (PDW)		Normal, or slightly increased		Progressively increasing, then going down during recovery				
	Immature Platelet Fraction (IPF)		Normal, or slightly increased		Progressively increasing, then going down during recovery				
			Normal, or slightly increased		Platelet-large cell count (P-LCC)				
CRP	Full-range C-reactive protein (FR-CRP)	0.00-4.00 mg/L	Slightly increased		Progressively increasing, CRP > 34mg/L plus age > 60 years indicating high probability of mortality in 12 days ⁷				

*Symptoms: fever, cough, breathing difficulties, headache, diarrhea

**Discharge: Under the premise that the patient's nucleic acid test result is negative for two consecutive days (alveolar lavage fluid is recommended⁸)

References:

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