

Potential Biomarkers for Defining the Severity, Progression, and Survival from COVID-19

Dear Editor,

There are potential laboratory biomarkers that can be used to ascertain the severity and progression of coronavirus disease 2019 (COVID-19), thereby predicting the survival of COVID-19 patients. For instance, there were rises in the levels of C-reactive protein (CRP), serum amyloid A, interleukin-6 (IL-6), lactate dehydrogenase, neutrophil-to-lymphocyte ratio, D-dimer, cardiac troponin, and renal biomarkers (Urea and creatinine levels;) in COVID-19 patients, and monitoring these biomarkers is important in defining the severity and progression of COVID-19 among these patients.^[1]

According to Yang *et al.*^[2] clinical levels of monocyte chemotactic protein-3, Interferon gamma –induced protein 10 (CXCL10), Monocyte chemotactic protein-3 (MCP-3), macrophage inflammatory protein 1 alpha, and hepatocyte growth factor which were shown to be extremely linked to severity during disease progression, were elevated in critically ill COVID-19 patients, and constant rise in these biomarkers mostly CXCL10 and monocyte chemotactic protein-3 were associated with severe progression of COVID-19, and fatality in COVID-19 patients. Laboratory biomarkers of cardiac and muscle impairment were high in patients with both severe and fatal cases of COVID-19, most patients who died of COVID-19 had higher cardiac troponin level, hence signifying possible viral myocarditis, progression of cardiac injury and multiple organ failure (MOF), mostly kidney and liver failure.^[3] There were also notable increases in alanine aminotransferase and aspartate aminotransferase levels which are important liver enzymes, urea, and creatinine levels, which are important biomarkers of renal function, and coagulation factors in critically ill COVID-19 patients.^[3] However, there were significant rises in the levels of immunologic biomarkers mostly IL-6, IL-10, tumor necrosis factor alpha, and serum ferritin, in dead and severe COVID-19 patients.^[3] According to Ponti *et al.*^[4] the development of a systemic inflammatory response syndrome, and cytokine-mediated coagulation disorders are the main factors responsible for MOF in patients with acute COVID-19 complications.

In conclusion, in order to determine the severity of COVID-19, rate of progression, recovery, and survival among patients with COVID-19, the above-mentioned inflammatory, immunologic, biochemical, and hematological biomarkers should be checked constantly, because these biomarkers provide useful information to the clinicians regarding the stage of COVID-19, and the treatment plan to be adopted for several COVID-19 patients.

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Conflicts of interest

There are no conflicts of interest.

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