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Study of Serum Electrolytes and Troponin I in COVID-19 Patients

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Abstract

SARS CoV was the causal agent for first outbreak of acute respiratory distress syndrome in the year 2002 and 2003 in Guangdong province, China. MERS CoV was the causal agent in the second outbreak of Middle East respiratory syndrome in the year 2012, Middle East. Both of these are zoonotic in origin and sometimes associated with fatal illness. Given its genetic diversity and genetic recombination of their genomes, their increasing activities human-animal interface, corona virus is expected to emerge periodically in human population. The clinical spectrum of SARS-CoV-2 infection appeared to be wide, ranging from asymptomatic infection, mild upper respiratory tract illness to severe or even fatal in some cases.

The gold standard for the laboratory diagnosis of COVID-19 is the reverse transcription quantitative real-time polymerase chain reaction (RT-qPCR) assay, which searches for SARS-CoV-2 target genes in nasopharyngeal/oropharyngeal (NP/OP) samples, and its performance depends on the quantity and quality of the RNA input. The angiotensin-converting enzyme 2 receptor (ACE2) is expressed in epithelial cells of many tissues including the kidney, and has been identified to interact with human pathogenic coronaviruses, including SARS-CoV-2. Although diffuse alveolar damage and acute respiratory failure are the main features of COVID-19 infection, two recent studies demonstrate that kidney impairment in hospitalized COVID-19 patients is common, and that kidney involvement is associated with high risk of in-hospital death. It has been proposed that low sodium balance may lead to more severe COVID-19. Indeed, studies on electrolyte disturbances during COVID-19 have shown significantly lower sodium concentrations in patients with severe COVID-19 infection. Besides focusing on the severe condition of pneumonia, the novel coronavirus may attack many important organs and cause multiple organ failure with cytokine storm. The heart is one of the most important organs and it is highly suspicious that viral myocarditis and myocardial injury could be also involved and may even be considered as one of the leading causes for the death of COVID-19 patients. Myocarditis and myocardial injury were suspected and may even be considered as one of the leading causes for death of COVID-19 patients. Acute respiratory infections as well as sepsis are often associated with an increase in troponin, which can be used as a marker of disease severity and predicts future cardiovascular events. Elevated troponin levels are frequent in patients with COVID-19 and significantly associated with fatal outcomes. This study is conducted to provide an overview on the current status of electrolytes and troponin-I levels in a small subset of people living in Manipur who are Covid-19 infected and non-infected healthy individuals with a special focus on the potential implications for COVID-19 pandemic.

Keywords: SARS-COV – 2, Serum Electrolyte, Serum Troponin I, Acute Respiratory Distress Syndrome