



Evaluation of the Relationship between Angiotensin 2 Converting Enzyme (ACE2) and the Occurrence of Acute Renal Impairment (AKI) In Patients with COVID-19

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Letter to Editor

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Abbreviations: GIT: Gastrointestinal; RAS: Renin-Angiotensin; NLR: Neutrophil to Lymphocyte Ratio; CRP: C-Reactive Protein; SARS-COV-2: Syndrome with Coronavirus 2.

Dear Editor,

COVID-19 is a contagious disease caused by the SARS-COV-2 virus and was first reported in Wuhan, China in December 2019. ACE2 is a membrane-width protein that converts angiotensin 2 to angiotensin 7-1 [1,2]. This enzyme is widely present in the cell membranes of the lungs, liver, kidneys, heart, and gastrointestinal tract, and various studies have shown that the virus enters cells through ACE2. Based on the study of related articles, the results show that acute renal injury with several different mechanisms is possible in people with Covid-19 [3-6]. One of the pathways through ACE2 is called the direct pathway, where this enzyme is present on the podocytes and the apical membrane of the cells of the nearby twisted tube, and the virus attacks the podocytes and the nearby twisted tube through ACE2 and causes damage. Acute nephrons and kidney damage. Hyponatremia is the most common electrolyte disorder with multiple causes and is associated not only with pneumonia but also with gastrointestinal (GIT) symptoms. The most common cause of hyponatremia is the syndrome of inadequate secretion of antidiuretic hormone (SIADH). Elevated cytokines directly contribute to osmotic regulation disorders and thus exacerbate hyponatremia. Hypokalemia described in several cases may be due to RAAS overactivity, potassium loss, and anorexia, and secondly to concomitant disease and tubular injury due to ischemia. Alfano, et al. Noted that the main cause of hypokalemia is related to ACE2 disorder by the

association of acute respiratory syndrome with coronavirus 2 (SARS-CoV-2). According to their paper, SARS-CoV-2 binds and degrades to ACE2, reduces the ability of the renin-angiotensin (RAS) system to regulate, ultimately increases its activity, which increases the distal transfer of sodium and water to The tubes collect the kidneys and excrete potassium COVID-19 patients with different degrees of CT showed a significant relationship with creatinine, sodium, potassium, C-reactive protein (CRP), ferritin, total protein and albumin with p values of 0.04, 0.01, 0.02, 0.000, 0.00, 0.00. And 0.000 in group I. in group II, respectively, with different degrees of CT changes, neutrophil to lymphocyte ratio (NLR) and creatinine showed no significance [5]. Sodium, potassium, CRP, ferritin, total protein, and albumin showed little importance with chest CT scores. Male patients were more affected in all degrees of lung CT than female patients. Bwire suggested that testosterone increases ACE2 receptors in the body. However, in women, ACE2-soluble receptors are induced by estrogen, which allows them to have higher anti-inflammatory capacities, resulting in lower risk and severity of coronary infection in women than in men. Accompanying conditions were observed in the ages of 50-60 years this case was supported by Janes, et al. In his study, which showed a significant increase in COVID-19-related mortality in the elderly compared to age compared to younger people. The rationale was that the number of comorbidities such as hypertension, diabetes, obesity, cardiovascular disease, and immunodeficiency changes that increase with age increases vulnerability to infection, resulting in death from COVID-19 in the elderly are disproportionately more numerous. Patients First-degree CT changes were mainly observed in the age group of 30 and 31-40 years. Grade II-IV CT changes were greater in the age groups of 50-41 and 51-60, even in

the absence of comorbid conditions. This was confirmed by Ferghali and Macbul who showed that in patients less than 30 years old, the correlation between age and CT score in both sexes was statistically significant at the lowest CT score. However, the highest CT intensity score was detected in patients over 50 years of age.

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