

## ABSTRACT

**BACKGORUND:** Hypokalemia is one of the complications in COVID-19 patients. Hypokalemia is caused by various mechanisms, including gastrointestinal symptoms, acute tubular injury, hyperactivation of the renin-angiotensin-aldosterone system, anorexia, diuretic therapy, and respiratory alkalosis. Hypokalemia can lead to exacerbation of ARDS and acute myocardial injury which is a common complication of COVID 19 infection and could be found in advanced stages of COVID 19 also indication of poor patient prognosis.

**AIMS:** To determine correlation between moderate, severe SARS Cov 2 infection and potassium level and myocardial injury

**METHODS:** An observational analytic study with a cross sectional design involving 63 subjects. The independent variable was SARS CoV 2 moderate Anda severe degree infection. Infection severity was based form the Indonesian COVID 19 guideline third edition, assesing signs and symptoms of pneumonia, respiratory distress, respiratory rate, and blood oxygen saturation. The dependent variable was myocardial injury and potassium blood level

**RESULTS:** The majority of the patients were female (53.8). The average age of the participants was 52.12 years old. COVID 19 infection was moderate in 76.9% of the people. The majority of patients showed normal kalium level (69.2%), while 23.1 percent had mild hypokalemia (3-3.4 mg/dL). NT pro BNP level were increased in 64.9 percent of patients (> 100 pg/mL), while troponin level were elevated in 13.7 percent of patients (> 0.1 ng/mL). Mild hypokalemia was found in 24% of patients with moderate COVID 19 infection and severe hypokalemia was found in 6% of patients with severe COVID 19 infection (3 mg/dL), but the majority of severe COVID 19 patients (76.9%) had normal kalium level. There was no link between kalium level and COVID 19 infection severity ( $p = 0.523$ ). NT pro BNP was higher in severe infection patients (73.3 percent versus 61.9 percent), but it was not statistically significant ( $p = 0.631$ ). Troponin level were higher in moderate COVID-19 patients than in severe COVID-19 patients (15.4 percent versus 8.3 percent ).

**CONCLUSION:** There was no significant relationship between degree of COVID 19 infection severity to kalium level and elevation of miocardial injury.

**KEYWORDS:** Hypokalemia, Myocardial Injury, COVID 19, Infection, Moderate, Severe, SARS CoV2

## ABSTRAK

**LATAR BELAKANG:** Hipokalemia merupakan salah satu komplikasi pada pasien COVID-19. Hipokalemia disebabkan oleh berbagai mekanisme, termasuk gejala gastrointestinal, cedera tubular akut, hiperaktivasi sistem renin-angiotensin-aldosteron, anoreksia, terapi diuretik, dan alkalosis respiratorik. Hipokalemia dapat menyebabkan eksaserbasi ARDS dan cedera miokard akut yang merupakan komplikasi umum dari infeksi COVID 19 dan dapat ditemukan pada COVID 19 stadium lanjut serta indikasi prognosis pasien yang buruk.

**TUJUAN:** Untuk mengetahui korelasi antara derajat keparahan infeksi SARS CoV 2 terhadap kadar kalium dan cedera miokardium

**METODE:** Penelitian observasional analitik dengan desain cross sectional melibatkan 63 subjek. Variabel bebas adalah infeksi SARS CoV 2 derajat sedang dan berat. Tingkat keparahan infeksi berdasarkan pedoman COVID 19 Indonesia edisi ketiga, menilai tanda dan gejala pneumonia, gangguan pernapasan, laju pernapasan, dan saturasi oksigen darah. Variabel terikat adalah cedera miokardium dan kadar kalium darah

**HASIL:** Mayoritas pasien adalah perempuan (53,8%). Rata-rata usia peserta adalah 52,12 tahun. 76,9% pasien menderita infeksi COVID 19 derajat sedang. Sebagian besar pasien menunjukkan kadar kalium normal (69,2%), sedangkan 23,1% mengalami hipokalemia ringan (3-3,4 mg/dL). Kadar NT pro BNP meningkat pada 64,9% pasien (> 100 pg/mL), sedangkan kadar troponin meningkat pada 13,7 % pasien (> 0,1 ng/mL). Hipokalemia ringan ditemukan pada 24% pasien dengan infeksi COVID 19 sedang dan hipokalemia berat ditemukan pada 6% pasien dengan infeksi COVID 19 berat (3 mg/dL), namun sebagian besar pasien COVID 19 berat (76,9%) normokalemia. Tidak ada hubungan antara kadar kalium dengan derajat keparahan infeksi COVID 19 ( $p = 0,523$ ). NT pro BNP lebih tinggi pada pasien infeksi berat (73,3% berbanding 61,9%), tetapi tidak signifikan secara statistik ( $p = 0,631$ ). Tingkat troponin lebih tinggi pada pasien COVID-19 sedang daripada pasien COVID-19 berat (15,4% berbanding 8,%).

**KESIMPULAN:** Tidak ada hubungan bermakna antara derajat keparahan infeksi COVID 19 terhadap kadar kalium dan peningkatan cedera miokard.

**KATA KUNCI:** Hipokalemia, Cedera miokardium, COVID 19, infeksi, sedang, berat, SARS CoV