Letter to the Editor

ISSN: 1735-0344 *Tanaffos 2021; 20(1): 5-6*

TANAFFOS

Which Complication is More Important in the Treatment of Patients with COVID-19? Rhabdomyolysis or Myocardial Injury

Parviz Amri

Clinical Research Development Unit of Ayatollah Rouhani Hospital, Babol University of Medical Sciences, Babol, Iran

Correspondence to: Amri P

Address: Clinical Research Development Unit of Ayatollah Rouhani Hospital, Babol University of Medical Sciences, Babol, Iran

Email address: pamrimaleh@gmail.com

Although lung is the most common organ involved in COVID-19 disease, involvement of other organs such as blood (Lymphopenia), liver, central nervous system, kidney (acute renal failure) and heart (myocardial injury) have been observed in various studies (1).

Involvement of the musculoskeletal system in COVID-19 is in the form of rhabdomyolysis. Three symptoms (muscle weakness, muscle pain and dark urine) are the hallmark of this syndrome (2). Involvement of the cardiovascular system has been seen as diastolic dysfunction and acute myocardial infarction (3). The basis of rhabdomyolysis treatment is the administration of intravenous fluid to increase the volume of urine to more than 100 cc per hour. Treatment of hyperkalemia, acidosis (sodium bicarbonate), and hypocalcemia is of great importance (2). Treatment of heart failure is fluid restriction (4). This causes a decrease in urine output and a further increase in LDH and CK, which makes patients more ill. Therefore, the decision is challenged when these two complications are present in the disease at the same time.

I recommend the following key points based on my experiences in the medical ICU ward which has 16 beds and, I only visited patients with COVID-19 from March 2019 to August 2020 (confirmed by PCR or CT scan of the lungs).

Recommendations:

1- Cases of rhabdomyolysis without myocardial injury should be given less fluid than the usual classic rhabdomyolysis treatment, for example, 3-4 liters, but with furosemide, and the fluid balance should be negative.

2- The patient has heart problems and does not have rhabdomyolysis; in this case if we give furosemide, considering that most patients have diastolic dysfunction and are sensitive to hypovolemia, they rapidly develop severe pulmonary edema with little extra fluid. Noninvasive ventilation with low-pressure BiPAP is helpful in treating pulmonary edema.

3- In cases where we have myocardial injury plus rhabdomyolysis, careful control of intake/output should be done. In a 70 kg patient, about 1.5 liters of fluid should be administered for 24 hours with 10 mg intravenous furosemide every 6 hours. In addition, in the morning, 500 cc of normal saline with 50 mg of furosemide should be given as an infusion of 100 cc per hour (according to LDH, CK, etc.).

4- In cases of systolic dysfunction, administer 10 mg intravenous furosemide every 6 hours. In addition, give 200 cc of normal saline with 20 mg of furosemide in the morning as an infusion of 100 cc per hour. Keep in mind that cardiogenic

pulmonary edema in these patients does not have a typical butterfly wing pattern. Patients who do not tolerate volume administration (hypervolemia, high IVC diameter) should receive 20 to 40 mg of furosemide and albumin.

5- Check LDH and CK every day. And if we have good urine output with the same dose of 10 mg intravenously every 6 hours and the balance is negative, there is no need for bolus dose of furosemide and it should be stopped gradually.

6- Spironolactone could be given (25 mg orally once or twice a day) based on the improvement seen in the treatment of myocardial function in these patients.

Conflicts of Interest

I declare that there are no conflicts of interest.

REFERENCES

1. Zaim S, Chong JH, Sankaranarayanan V, Harky A. COVID-19 and Multiorgan Response. ***Curr Probl Cardiol*** 2020;45(8):100618.
2. Valente-Acosta B, Moreno-Sanchez F, Fueyo-Rodriguez O, Palomar-Lever A. Rhabdomyolysis as an initial presentation in a patient diagnosed with COVID-19. ***BMJ Case Rep*** 2020;13(6):e236719.
3. B K A, Chaudhuri D. A Review of Acute Myocardial Injury in Coronavirus Disease 2019. ***Cureus*** 2020;12(6):e8426.
4. Nishiga M, Wang DW, Han Y, Lewis DB, Wu JC. COVID-19 and cardiovascular disease: from basic mechanisms to clinical perspectives. ***Nat Rev Cardiol*** 2020;17(9):543-58.