

CARDIAC ARRHYTHMIA ASSOCIATED WITH COVID-19

Sristee Niraula, Shital Oli, Janette Lee

- **Learning Objective**

1. Recognize side effects of Remdesivir
2. Discuss late presentation of COVID

- **Case Report**

An 88-year-old male with a medical history significant for Diabetes, Hypertension and remote history of prostate and bladder cancer presented with generalized weakness and shakiness. The patient incidentally tested positive for COVID-19 on December 26, 2021 and was asymptomatic throughout his quarantine at home. He was released from quarantine by the health department after 10 days. However, his symptoms of weakness and shakiness began on the 11th day. He otherwise reported no chest pain, shortness of breath, nausea, vomiting, diarrhea, loss of taste/smell, or abdominal pain.

On examination, he was febrile with a temperature of 101.8 F, with other vitals within normal limits and an oxygen saturation of 96% on room air. Physical exam was unremarkable.

Pertinent laboratory studies showed ferritin of 1527.7 ng/ml, LDH of 281 U/L, D-dimer of 328 ng/ml and lymphocyte count of 0.8. His creatinine was 1.95 and other labs were normal including LFT and Troponin.

Chest X-ray was unremarkable **but CT scan showed extensive patchy, bilateral ground-glass opacities, more pronounced in the left lung.** He was tested positive for COVID and treated with Remdesivir and Dexamethasone. After day 3, his heart rate dropped around the range of 50-60. On Day 5 of Remdesivir initiation, he demonstrated continuous PVCs with accelerated wide complex tachycardia, with the longest episode being 16 beats with a ventricular rate of 100 beats-per-minute. He was completely asymptomatic during this episode, which occurred approximately 50 minutes after his fifth dose of Remdesivir.

Transthoracic echocardiogram showed EF of 60-65% with no regional wall motion abnormalities; troponin was also negative. Patient was noted to have had multiple stress tests in the past, all of which were negative. Given that he was asymptomatic, with no troponin elevation, no EKG changes and no acute findings on echo, we did not pursue a stress test or catheterization. He was observed on telemetry, and no further episodes were noted. He did not receive Remdesivir after that episode, as that had been his last dose. On day 8 his heart rate returned to his baseline, around 70-80.

References:

1. Anupam K. Gupta, Barbara M. Parker, Vikash Priyadarshi, John Parker. Cardiac Adverse Events With Remdesivir in COVID-19 Infection 10.7759/cureus.11132.
2. John H. Beigel, M.D., Kay M. Tomashek, M.D., M.P.H., Lori E. Dodd, Ph.D., Aneesh K. Mehta, Remdesivir for the Treatment of Covid-19. N Engl J Med 2020; 383:1813-1826

Imaging and EKG

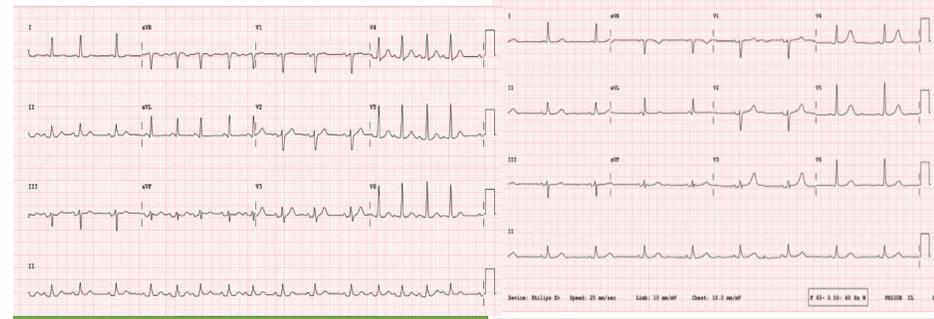


Fig 1: EKG on presentation

After Remdesivir

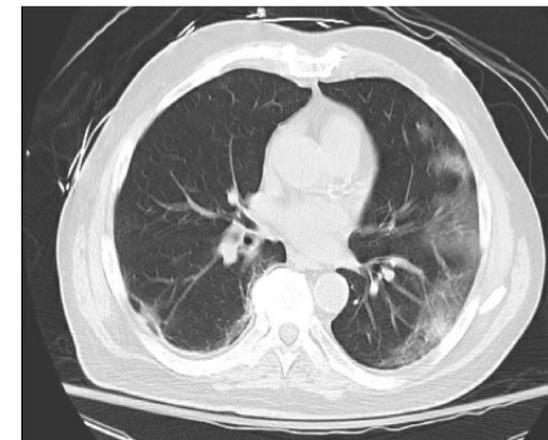
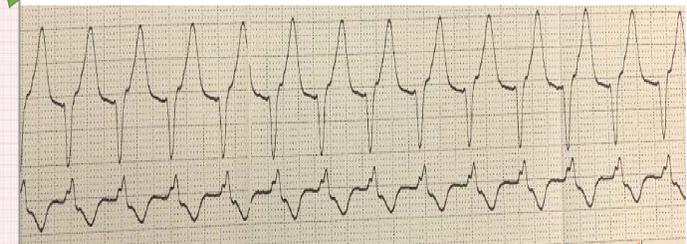


Fig: CT Chest

- **Discussion**

Little has been reported about the side effects of Remdesivir, especially any cardiovascular effects. There have been a few case reports about Remdesivir-induced bradycardia and QTc prolongation. Here we report both bradycardia and wide-complex tachycardia which might be associated with Remdesivir use, as this patient began his hospital stay with a normal heart rate, and was seen to return to his baseline heart rate with no further episodes of arrhythmia after cessation of Remdesivir.

- **Conclusion**

Our patient developed sinus bradycardia and wide complex tachycardia during Remdesivir use. Appropriate caution and continuous EKG monitoring should be done in patients using Remdesivir, as the safety of Remdesivir remains uncertain. Even closer surveillance for patients with pre-existing heart disease may be warranted when using Remdesivir. There remains the need for more high-quality evidence from randomized controlled trials that are presently underway. A final note is that our case calls into question the current recommendations to end quarantine after 10 days without symptoms, as this patient developed symptoms after 10 days and required hospitalization. Indeed, clinicians should remain on high alert as patients, particularly in the elderly population, come off quarantine following expert consensus or guidelines.

For additional information, please contact:
Sristee Niraula, MD: sniraula@cayugamed.org
Shital Oli: soli@cayugamed.org