



MICRO LABS LIMITED

Dear Doctor,

Greetings from Micro Labs limited. We are happy to bring **"CRITICONNECT"** containing latest information in the field of Critical care medicine.

Inside This Issue

- A New Saliva Test for Coronavirus Approved by FDA -1
- Antibiotic Administration Delay Is Associated with Mortality Among Septic Shock Patients with Staphylococcus Aureus Bacteremia -3
- Relationship Between Cardiac Injury and Mortality Patients Infected with Avian Influenza A (H7N9) Virus -4

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Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Ltd



A New Saliva Test for Coronavirus Approved by FDA

The FDA has approved Rutgers' RUCDR Infinite Biologics and its partner's emergency usage authorisation (EUA) for a novel testing method utilizing saliva as the primary research biomaterial for the SARS-CoV-2 coronavirus, the first such clearance issued by the federal government. The new method of collecting saliva established by RUCDR in collaboration with Spectrum Solutions and Accurate Diagnostic Labs (ADL) would allow wider community screening than the existing system of nose- and throat swabs.

Andrew Brooks, Chief Operating Officer and Manager of Product Creation at RUCDR, who is also a professor at Rutgers University – New Brunswick's School of Arts and Sciences Department of Genetics, said the effect of this approval is important, ensuring that we no longer have to place health care workers at risk of infection by nasopharyngeal or oropharyngeal collection. Perhaps we should conserve valuable personal safety devices instead of checking for usage in health treatment. They will increase the amount of individuals screened each and every day considerably as saliva self-collection is quicker and more flexible than swab collections. All of this together would have a major effect on production in New Jersey and around the U.S. Shortly after the FDA notification was obtained by the Rutgers-ADL team on Saturday, the COVID-19 research task force at the White House called on Brooks to give their encouragement and help and to inquire about some potential obstacles to extend research and enable other laboratories to benefit from the achievement.

Immediately after the White House meeting, chief executives of several of the world's leading life sciences firms participating with COVID-19 trials approach the study team. Brooks said they're going to work together with these new allies, the FDA and the task force at the White House to use all that Rutgers has to give not just to support our city but also to have a global effect. Robert Barchi, president of Rutgers University, called the new saliva test a herculean effort that's great for the country and the world and great for our university by reflection.

He continued that saliva testing would deal with the global lack of swabs to study and improve patient safety, as it won't allow health care workers to be placed at risk to obtain study saliva safety would also be useful for patients in quarantine so they don't realize how long it would be before they're no longer infective. This will allow health care workers to release themselves from quarantine and safely come back to work. Jay A. Tischfield, creator and Chief Executive Officer at Rutgers – New Brunswick's Department of Genetics, said the test will help hospital and private doctors reliably determine the infection condition of many patients, with RUCDR Infinite Biologics performing the research. Rutgers is fortunate to be at the cutting-edge of the COVID-19 pandemic war. Chancellor Brian Strom, with Rutgers Biomedical and Health Sciences. He said that our doctors and health care workers have long claimed they are trying to help make the planet a healthy environment, but that has never been more relevant than now.

Rutgers has also been in the center of study and exploration. We are proud of the research that we are doing and the good effect that this has on the planet. The FDA's acceptance of the latest approach to saliva processing is the second big statement by RUCDR in recent days, which introduced a genetic testing program for the coronavirus that will check thousands of samples daily.

For the latest saliva check, the amount will rise to tens of thousands of samples per day. The assessments are accessible through the RWJ Barnabas Health Network, which has collaborated with Rutgers University, comprising University Hospital Robert Wood Johnson, Newark University Hospital, among several more hospitals, including many local health departments. Rutgers, in conjunction with the Government of Middlesex County and RWJ Barnabas Health, will be having the study open to county residents at a drive-through evaluation center beginning Wednesday.

Antibiotic Administration Delay Is Associated with Mortality Among Septic Shock Patients with Staphylococcus Aureus Bacteremia

INTRODUCTION

Sepsis is a significant global problem of public health that impacts more than 31 million people and induces an additional 5.3 million deaths each year. International recommendations and federal safety controls allow for the prompt administering of antibiotics to septic patients, which also warn them to be provided within the first hour in the event of septic shocks.

Initial research investigating the association between time to antibiotics and mortality from sepsis yielded mixed findings, which indicate an early antibiotic administration benefit. Two recent research that looked at massive regional repositories offer the most convincing proof that early antibiotic administration saves lives.

The objective of this study was to study the relationship between the time to appropriate antibiotic administration following emergency department (ED) triage and mortality among patients with septic shock admitted to the ICU whose blood cultures revealed a *S. aureus* infection.

METHODS

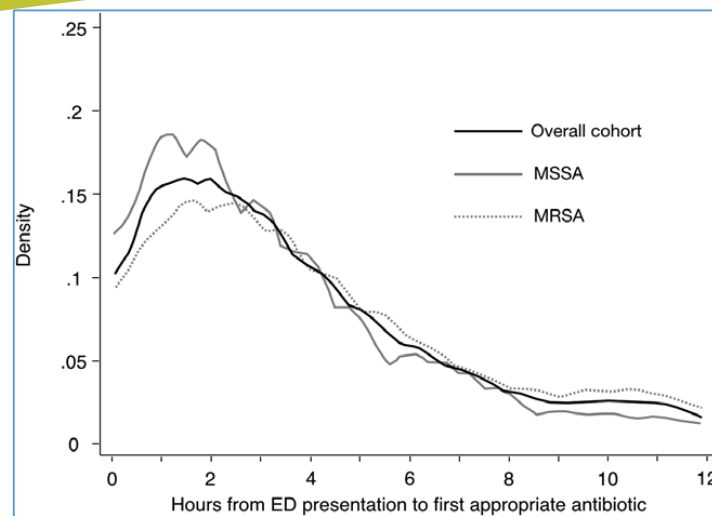
One-hundred twenty-two hospitals in the Veterans Affairs Health System.

Patients: Patients with septic shock and *S. aureus* bacteremia admitted directly from the emergency department to the ICU, were evaluated.

Interventions: Time to appropriate antibiotic administration and 30-day mortality.

RESULTS

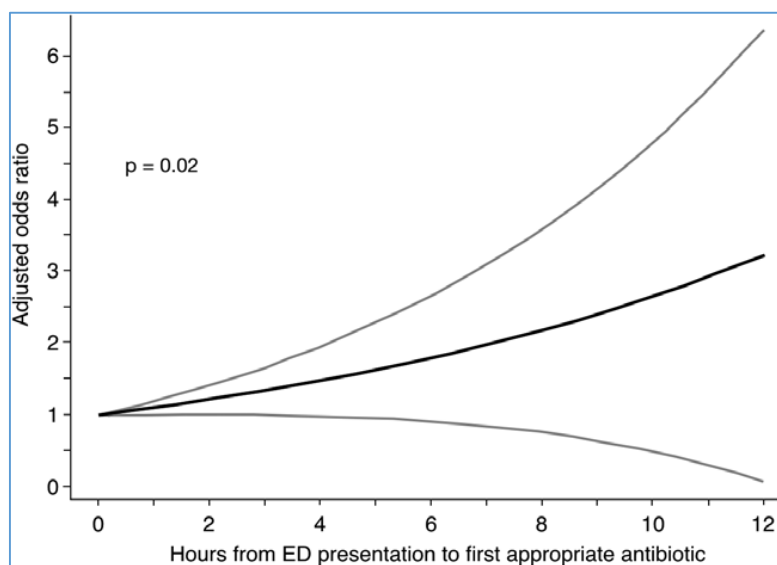
A total of 506 patients with *S. aureus* bacteremia and septic shock were included in the analysis. Thirty-day mortality was 78.1% for the entire cohort and was similar for those participants with methicillin-resistant *S. aureus* and methicillin-sensitive *S. aureus* bacteremia. Our multivariate analysis revealed that, as compared with those who received appropriate antibiotics within 1 hour after emergency department presentation, each additional hour that passed before appropriate antibiotics were administered produced an odds ratio of 1.11 (95% CI, 1.02–1.21) of mortality within 30 days. This odds increase equates to an average adjusted mortality increase of 1.3% (95% CI, 0.4–2.2%) for every hour that passes before antibiotics are administered.



Kernel density plot showing time to antibiotic administration from emergency department triage.

ED = emergency department, MRSA = methicillin-resistant *Staphylococcus aureus*,

MSSA = methicillin-sensitive *S. aureus*.



Odds ratios of 30-d mortality and the associated 95% CI for time to first appropriate antibiotic administration.

Multivariate model adjusted for body mass index, Acute Physiology and Chronic Health Evaluation III score, infective arthritis, systemic inflammatory response syndrome criteria present at the time of blood culture, methicillin-resistant *Staphylococcus aureus*/methicillin-sensitive *S. aureus*, and continuous time. ED = emergency department.

Model	<i>n</i>	OR for 30-d Mortality for Each Hour Delay in Antibiotic Administration (95% CI)
Unadjusted	506	1.06 (0.98–1.14)
Adjusted model ^a	506	1.11 (1.02–1.21)
Stratified sample		
Methicillin-resistant <i>Staphylococcus aureus</i>	268	1.15 (0.99–1.31)
Methicillin-sensitive <i>S. aureus</i>	238	1.08 (0.97–1.19)
Shock onset ≤ 12 hr	298	1.13 (1.01–1.25)
Shock onset > 12 hr	208	1.05 (0.92–1.18)
Antibiotics before shock	340	1.09 (0.98–1.20)
Antibiotics after shock	166	1.14 (0.99–1.30)

OR = odds ratio.

Odds Ratios for 30-Day Mortality Among Septic Shock *Staphylococcus aureus* Bacteremic Patients Based Upon Time to Appropriate Antibiotic Administration

CONCLUSION

Among patients with septic shock, *S. Aureus* bacteremia admitted directly from ED to ICU revealed that each hour delay in adequate antibiotic administration was associated with an 11% increase in the odds of 30-day death. Doctors will recommend taking immediate steps to prescribe antibiotics to *S. Coverage of aureus* of every individual suspected of septic shock. The interaction between antibiotic timing and morality with certain pathogens such as Gram-negative bacteria will be explored in future research.

REFERENCES

Corl KA, Zeba F, Caffrey AR, et al. Delay in Antibiotic Administration Is Associated With Mortality Among Septic Shock Patients With *Staphylococcus aureus* Bacteremia. Crit Care Med. 2020;48(4):525–532.

Relationship Between Cardiac Injury and Mortality Patients Infected with Avian Influenza A (H7N9) Virus

INTRODUCTION

Since March 2013, avian influenza A (H7N9) virus has triggered five significant waves of human illness in mainland China, with mortality in three waves approaching 40 per cent. A recent case report showed one death after infection with the H7N9 virus in late March 2019, and potential re-emergence of a highly pathogenic zoonotic viral strain may cause public health concern. Although we recognize that H7N9 virus infection can cause acute respiratory distress syndrome (ARDS), pneumonia, acute kidney injury (AKI), pain, and rhabdomyolysis, we do learn nothing regarding heart failure following H7N9 viral infection. The objective of this study was to evaluate the prevalence of cardiac injury and its association with mortality in hospitalized patients infected with avian influenza A (H7N9) virus.

METHODS

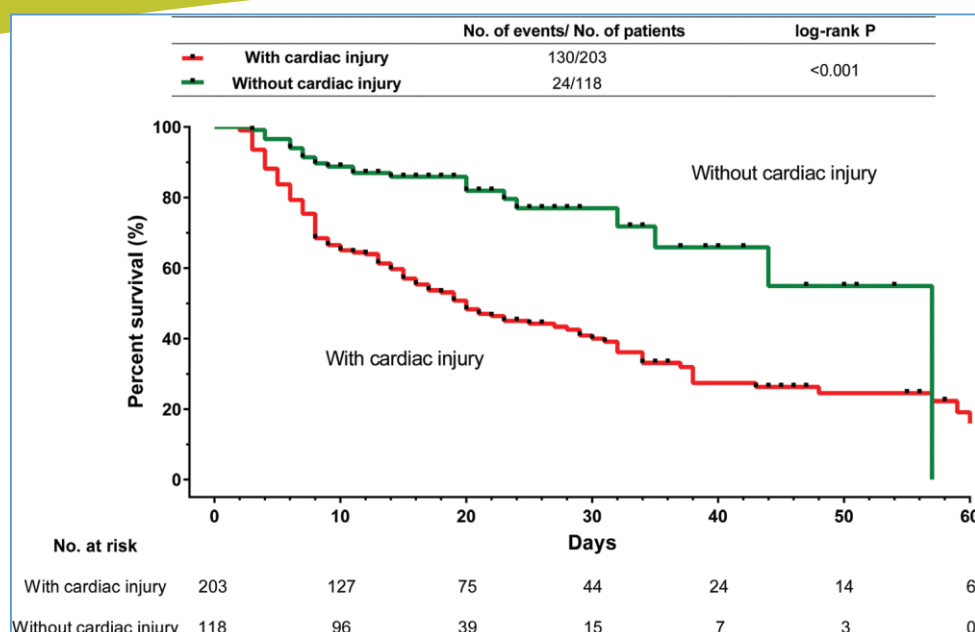
Setting: A total of 133 hospitals in 17 provinces, autonomous regions, and municipalities of mainland China that admitted influenza A (H7N9) virus-infected patients

Patients: A total of 321 patients with influenza A (H7N9) virus infection were included in the final analysis.

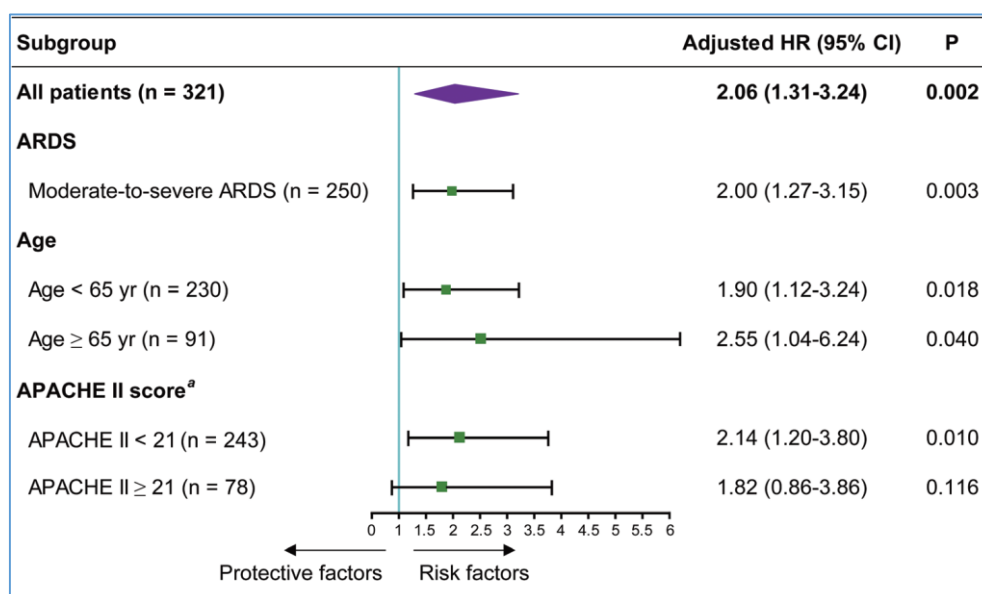
Interventions: None.

RESULTS

Demographics and clinical characteristics were collected from medical records. Cardiac injury was defined according to cardiac biomarkers, electrocardiography, or echocardiography. Among the 321 patients, 203 (63.2%) showed evidence of cardiac injury. Compared with the uninjured group, the cardiac injury group had lower Pao₂/Fio₂ (median, 102.0 vs 148.4 mm Hg; $p < 0.001$), higher Acute Physiology and Chronic Health Evaluation II score (median, 17.0 vs 11.0; $p < 0.001$), longer stay in the ICU (10.0 vs 9.0 d; $p = 0.029$), and higher proportion of in-hospital death (64.0% vs 20.3%; $p < 0.001$). The proportion of virus clearance until discharge or death was lower in the cardiac injury group than in the uninjured group (58.6% vs 86.4%; $p < 0.001$). Multivariable-adjusted Cox proportional hazards regression analysis showed that cardiac injury was associated with higher mortality (hazards ratio, 2.06; 95% CI, 1.31–3.24) during hospitalization.



Kaplan-Meier survival curves for mortality during hospitalization. The numbers under the graph represent the number of hospitalized patients with or without cardiac injury at risk of death on the indicated day.



Multivariate Cox regression analysis of cardiac injury associated with mortality in influenza A (H7N9) virus-infected hospitalized patients. aAcute Physiology and Chronic Health Evaluation (APACHE) II score was assessed within 24 hr of admission to hospital. The potential confounding variables including age (< 65 yr, ≥ 65 yr), APACHE II score at admission (< 21, ≥ 21), Pao₂/Fio₂ (≤ 200 mm Hg, > 200 mm Hg), acute kidney injury, and preexisting cardiac conditions were used to adjust for the association between cardiac injury and mortality. ARDS = acute respiratory distress syndrome, HR = hazard ratio.



CONCLUSIONS

Cardiac damage is a frequent occurrence in hospitalized patients diagnosed with influenza A (H7N9) virus and is linked with a greater risk of mortality in hospital. The relationship between H7N9 virus and cardiac failure requires more investigation, and physicians should be mindful of the risk for heart damage in patients diagnosed with the H7N9 virus. These patients will require stronger and more regular supervision.

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Gao C, Wang Y, Gu X, et al. Association Between Cardiac Injury and Mortality in Hospitalized Patients Infected With Avian Influenza A (H7N9) Virus [published online ahead of print, 2020]. Crit Care Med. 2020;10.1097/CCM.0000000000004207.

