

WHEN YOU HEAR HOOFBEATS: A CASE OF INFLUENZA-INDUCED ARDS WITH A FALSE NEGATIVE FLU SWAB

DM Petrenko, DO¹, D Kalos, MD¹, O Smolynets, DO¹

1. Department of Internal Medicine, Suburban Community Hospital

Introduction

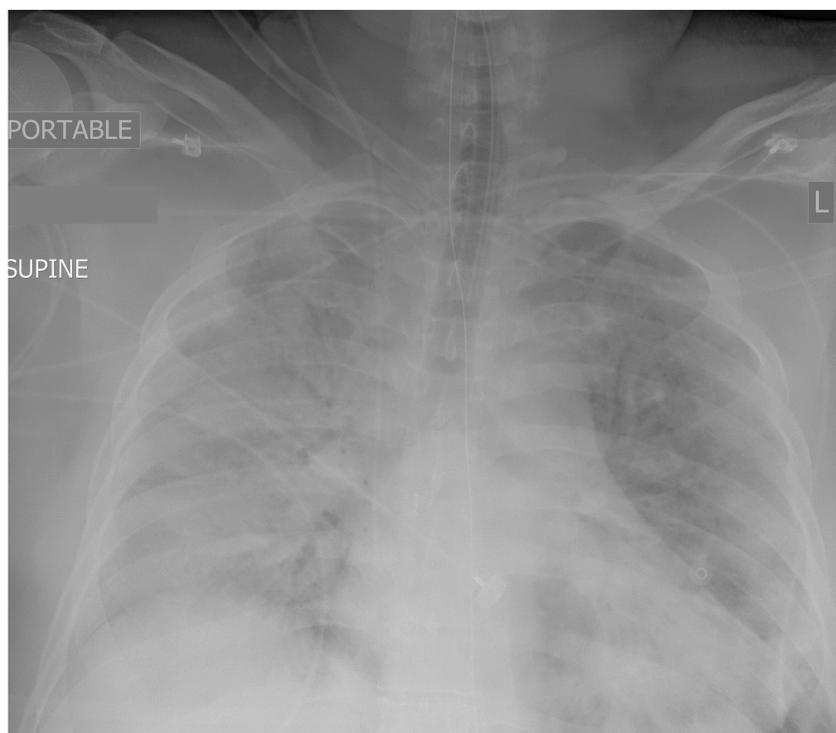
Influenza is a very important cause of hospitalization in the general population. Though the very young, elderly, and immunocompromised are at the highest risk, influenza can still have devastating effects on a young, immunocompetent host. The 2017-2018 influenza A outbreak was particularly virulent, costing many lives in the United States and straining the healthcare system.

Case Report

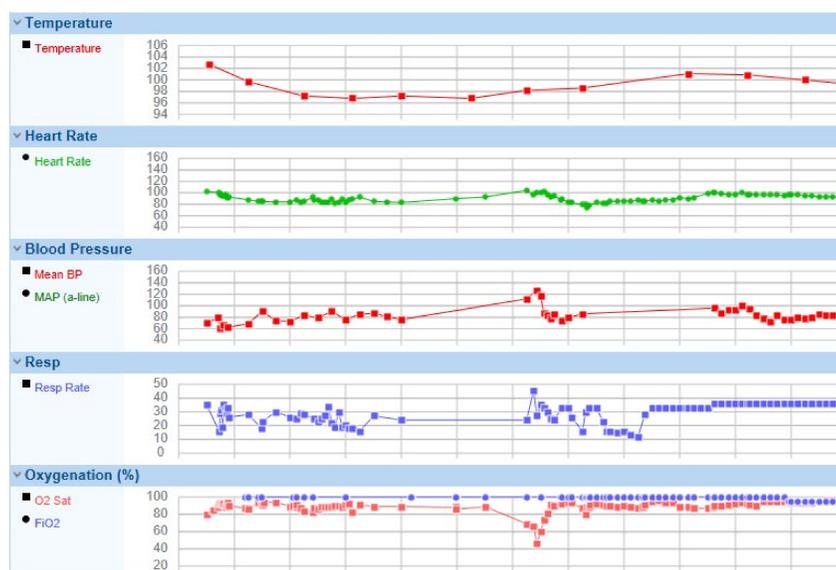
A 42-year-old male presented to the emergency department in January with his family with concerns of altered mental status. For the past two days, he complained of diarrhea, productive cough, and shortness of breath.

Initially, patient was hypoxemic and required BiPAP. He had no prior history of lung disease. Nasopharyngeal rapid influenza A/B antigen and RSV screen were negative. He was started on oseltamivir due to high clinical suspicion for influenza and broad-spectrum antibiotics. The patient couldn't tolerate BiPAP due to progressing delirium, and on the second day required urgent intubation. His chest x-ray was consistent with ARDS, echocardiogram showed normal LVEF, and ABG showed pH 7.2, pCO₂ 52.5, pO₂ 48.9, bicarb 20.2 on TV 580, RR 33, PEEP 18, and 100% FiO₂. Legionella and Streptococcus pneumoniae antigens were negative. Respiratory culture grew normal flora and yeast. Patient was paralyzed and sedated on the ventilator and his hypoxemia began to improve slowly. FiO₂ was titrated down to 60% and PEEP was 16 after 6 days. It was felt that he could benefit from proning or ECMO and he was transferred to a tertiary care center. Viral culture returned positive for influenza A. After four weeks of ICU care, the patient was successfully weaned off sedation and discharged.

Chest X-Ray



Vital Signs



Discussion

Acute respiratory distress syndrome, or ARDS, is defined by bilateral pulmonary infiltrates, which are not explained by heart failure, with a PaO₂/FiO₂ of ≤ 200 . Once the diagnosis is made, the mainstay of care is supportive, focusing on ventilator optimization and hemodynamics. Identification and treatment of the underlying cause is paramount as well. The precise roles of proning and ECMO are still under investigation.

Much of the data we have about influenza complicated with ARDS comes from the 2009 pandemic. Multiple studies and review articles indicate that early initiation of oseltamivir therapy improves patient outcome. In addition, continuation of oseltamivir past the typical 5-day course is likely beneficial in the critically ill patient. With that in mind, clinicians should be vigilant for signs and symptoms of influenza in their hospitalized and critically ill patients.

Conclusion

Initiation of oseltamivir within five days of symptom onset is a well-established recommendation for patients critically ill due to influenza. Rapid influenza tests are highly specific, but sensitivities vary. Having high clinical suspicion for influenza, especially at times of high prevalence in the community, is paramount to initiating appropriate treatment and may improve outcome.

References

1. McQuade B, Blair M. Influenza treatment with oseltamivir outside of labeled recommendations. *Am J Health Syst Pharm.* 2015 Jan 15;72(2):112-6
2. Rello J, Pop-Vicas A. Clinical review: Primary influenza viral pneumonia. *Critical Care.* 2009 Dec 21 13:235
3. Rodriguez A, Díaz E, et. al. Impact of early oseltamivir treatment on outcome in critically ill patients with 2009 pandemic influenza A. *J Antimicrob Chemother.* 2011 May;66(5):1140-9
4. Mikić D, Nozić D, et. al. Clinical manifestations, therapy and outcome of pandemic influenza A (H1N1) 2009 in hospitalized patients. *Vojnosanit Pregl.* 2011 Mar;68(3):248-56