EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

BROWARD HEALTH Care Warriors

Author: Archana Pai | Editor: Ajith Susai D.O.

2018| Vol 4 | Issue 43

Influenza

A 32 year-old female with a past medical history of HIV presents to the ED with productive cough, runny nose, headache, and knee pain for the past 6 hours. She admits to clear mucous production from her nose, posttussive vomiting, and a throbbing 8/10 frontal headache that manifests when she coughs. She denies any fever or recent travel. Patient is afebrile but is tachycardic with a heart rate of 108 beats per minute. On physical exam, patient's lungs are clear to auscultation; abdomen is mildly tender to palpation with no rebound tenderness. On HEENT exam, oral mucosa is moist and oropharynx is mildly erythematous. The nasal turbinates are erythematous and cervical lymph nodes are non palpable. The remainder of the exam is within normal limits. Additional note: she has a 14 month old at home that is formula fed. Which of the following is the most appropriate initial treatment for this patient's condition?

A. Supportive care with rest and fluids at home for 5 to 10 days

B. Start treatment with Oseltamivir 75mg by mouth for 5 days twice daily (within 48 hours), rest, fluids, and prophylactic dose for baby

C. Start treatment with Oseltamivir 75mg by mouth for 5 days twice daily for patient and baby (within 48 hours) along with rest and fluids

D. Start treatment with Oseltamivir 75mg by mouth for 10 days daily

E. Start treatment with Zithromax Z-Pak

Influenza is a segmented virus that is transmitted through respiratory secretions. It most commonly manifests with: cough, fever, chills, runny nose, muscle aches, headaches, fatigue, and less frequently vomiting and diarrhea.

Patients should go to the emergency room if they have sudden difficulty breathing, chest pressure, chest pain, abdominal pain, sudden dizziness, confusion, unremitting vomiting, or flu-like symptoms that return with worsening fever and cough.

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

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Department of Emergency Medicine
1625 SE 3rd Avenue
Fort Lauderdale, FL 33316

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2018 | Vol 4 | Issue 43

The correct answer is B. Start treatment with Oseltamivir 75mg by mouth for 5 days twice daily (within 48 hours), rest, fluids, and prophylactic dose for baby.

Influenza stems from the Italian word meaning influence and causes epidemics worldwide. Influenza is a respiratory viral illness that has a sudden onset. The virus originates from a segmented genome that has many errors during replication, causing it to have multiple variants. Current active strains include, AH3N2, AH1N1pdm09, influenza B/Vamagata, influenza/Victoria. Hemagglutinin and neuramidase are the virus's virulence factors. During the 2016-2017 flu season, influenza accounted for 84,600 hospitalizations. Those at high risk of getting the flu include, adults over the age of 65, children under the age of 2, pregnant women, immunosuppressed patients, individuals with cardiovascular, pulmonary, renal, or hepatic disorders, people under the age of 19 that are receiving aspirin therapy, and those who have a body mass index greater than 40.

Discussion

During the 2017-2018 flu season, the major variant of influenza is Influenza A H3N2. It mostly affects people aged 65 and older and young children. Complications from the flu include, ear infections, pneumonia, myocarditis, encephalitis, rhabdomyolysis, multi-organ failure, sepsis, and death.

Vaccination: One of the most effective methods of preventing the flu includes vaccination with the annual flu vaccine. The flu strain included in the vaccine is chosen about 6 months before it is manufactured. The majority of flu vaccines are made with eggs. A minority of vaccines are created from non-egg sources, such as cell-based and recombinant protein. The current quadrivalent vaccine, Afluria Quadrivalent IIV contains A Michigan/45/2015, A/HongKong 4801/2014, B/Brisbane/60/2008-like B/Victoria lineage, and B/Phuket/3073/2013-like virus. The influenza vaccination is recommended annually for children ages 6 months and older. A study showed that the vaccines from 2004 to 2015 were 54% effective against the Influenza B and 33% effective against Influenza A H3N2 strain.

Flu vs Cold

Signs and Symptoms	Influenza	Cold
Symptom onset	Abrupt	Gradual
Fever	Usual; lasts 3-4 days	Rare
Aches	Usual; often severe	Slight
Chills	Fairly common	Uncommon
Fatigue, weakness	Usual	Sometimes
Sneezing	Sometimes	Common
Stuffy nose	Sometimes	Common
Sore throat	Sometimes	Common
Chest discomfort, cough	Common; can be severe	Mild to moderate; hacking cough
Headache	Common	Rare

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Diagnosis

The most accurate method to diagnose the flu is through molecular assays. Conventional reverse-transcriptase polymerase chain reaction (RT-PCR) has a high sensitivity and specificity. Rapid influenza antigen tests can test for Influenza A and B nucleoproteins within 15 minutes but are less sensitive than RT-PCR. Even in cases in which the diagnostic tests are negative, patients should still be treated if the healthcare provider clinically suspects the flu.

Treatment

The mainstay treatment for the flu in the inpatient and outpatient setting includes a neuraminidase antiviral inhibitor, which should be started within 48 hours of onset of symptoms. Three medications advised by the CDC and the FDA includes oral oseltamivir (Tamiflu), inhaled zanamivir, and IV peramivir. Osteltamivir is recommended by the FDA for use in children 2 weeks and older. The CDC and the American Academy of Pediatrics also recommend using oseltamivir to treat children under the age of 14 days. A second treatment option is zanamavir (Relenza), which is recommended for children above the age of 7 and for prophylaxis for those above the age of 5. Intravenous peramivir is recommended for those above the age of 2. In addition, patients should continue respiratory and cough hygiene, drink plenty of fluids, and continue hand washing. The CDC currently does not recommend adamantanes for treatment, as they have a high level of resistance to the Influenza A virus. The recovery time for flu is usually less than 2 weeks.

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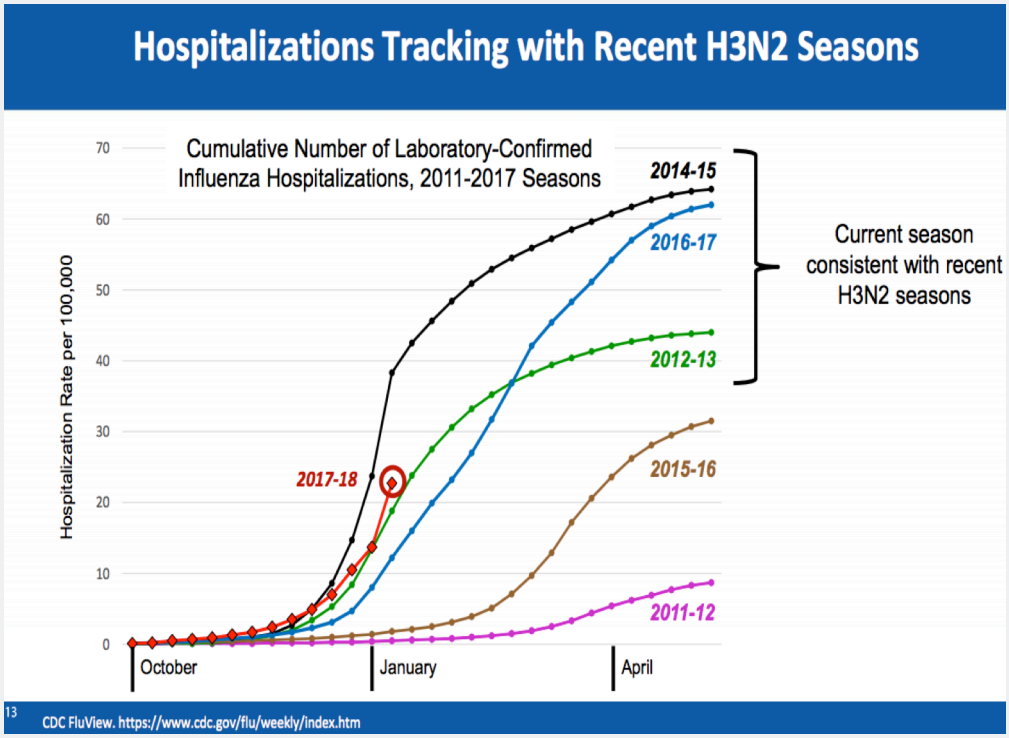

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Take Home Points

- The 2017-2018 flu season has seen a rise in cases of influenza, mainly in Influenza A/ H2N3 followed by influenza B
- The diagnosis of influenza is done clinically and can be followed up with molecular assays such as RT-PCR and rapid influenza antigen tests
- Those most at risk of hospitalization include those over the age of 65, children under the age of 2, pregnant women, immunosuppressed individuals, those with chronic diseases such as renal or cardiac diseases, individuals under the age of 19 being treated with aspirin, and those that are obese
- Prompt treatment within 48 hours with oral oseltamivir, inhaled zanamavir, or IV peramivir is essential to reduce the severity of symptoms especially in high-risk groups

ABOUT THE AUTHOR

This month's case was written by Archana Pai. Archana is a 4th year medical student from NSU-COM. She did her emergency medicine rotation at BHMC in January 2018. Archana plans on pursuing a career in Family Medicine after graduation.

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