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EM CASE OF THE MONTH

BROWARD HEALTH MEDICAL CENTER DEPARTMENT OF EMERGENCY MEDICINE

As we enter flu season, it is important to know the facts about influenza. These patients will flood the ED looking for relief from their symptoms. It is important that we responsibly manage these patients and help to manage their expectations. This month we explore the facts about influenza.

EM CASE OF THE MONTH

EM Case of the Month is a monthly "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.

Influenza: Fact vs. Fiction

A 32 year old female signs into the ED with 3 days of cough, myalgias, fever, headache, fatigue, and congestion. Her vital signs are T 100.8, HR 110, RR 20, BP 110/70, O2 sat 98%. She is triaged and sent to fast track with a CXR ordered. She is seen by the clinician who tells her that her CXR is normal and that she has influenza. She is prescribed Tylenol cold & flu and discharged. She seems dissatisfied and the discharge nurse asks her if eveything is OK. "How could he say I have the flu without doing a swab? What about flu pills? I heard about Tamiflu from a friend. Would the flu vaccine have prevented this?". Which of the following statements about influenza are true?

A. The flu swab should be ordered on all patients with symptoms of influenza.

B. If the flu swab is negative, the odds of having influenza are extremely low.

C. Tamiflu (oseltamivir) has been shown to reduce the severity and duration of all patients with influenza.

D. The CDC only recommends the flu vaccine for health care workers and high risk populations such as immunocompromised and extremes of age.

E. If the predicted strain in a given year is correct, the flu vaccine will decrease the odds of the getting the flu from 4% to 1%.

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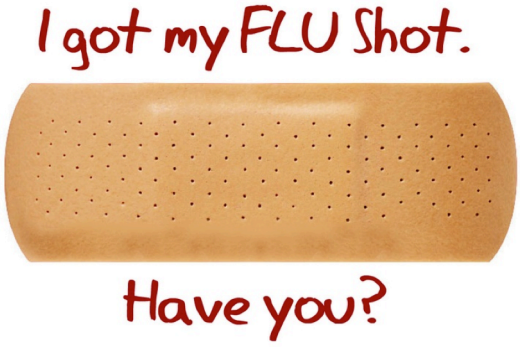

Take Home Points

- The best approach to influenza is prevention. The CDC recommends the flu vaccine to ALL persons aged >6 months. The vaccine can decrease your odds of getting the flu from 2-4% down to 1%.
- Influenza is common and can be deadly, especially in the elderly and debilitated patient.
- Rapid flu swabs add little value to the workup. They should only be ordered in patients that are being considered for more extensive workups.
- Tamiflu (oseltamivir) may be shorten the duration of the flu by 1 day if started in the first 48 hours of illness. However, at a cost of $120 and an increased incidence of vomiting you should involve the patient in the decision to use this drug.

Influenza

The correct answer is E. In the United States, an influenza vaccine is recommended for all persons aged ≥6 months without contraindications. Keep in mind that the strains included in the flu vaccine are chosen in February each year. Determination of which flu strains are most likely to circulate is based in part on data from 4 centers: Tokyo, Sydney, London and Atlanta. The vaccine usually includes two influenza A strains and one influenza B strain. When you look at the randomized trial data for healthy adults, it matters whether it was a well- matched year or not. **If you look at the randomized trial data from years when the vaccine matched pretty well, you find that the placebo group had a 4% of getting a flu-like illness and those in the vaccinated group had a 1% chance.** The number needed to treat was 33. So what happened in years when the vaccine did not match well you ask? The vaccine *still worked* but it didn't work as well. The unvaccinated had a 2% chance of a flu-like illness and the vaccinated had a 1% chance. The number needed to treat was 100. The vaccine seems to works even better in children. When children are randomized to receive the flu vaccine versus placebo, 1 in every 8 avoids a flu-like illness.

Discussion:

With all of the discussion in the media surrounding Ebola and how to protect ourselves against this deadly virus, I think it is important to put this into perspective. Yes, Ebola is an often rapidly fatal disease. But since it was first discovered in 1976, to date it has killed a total of 1 person in the USA. One person. Meanwhile, influenza-related deaths range from 3000 – 49.000 people annually in the USA alone (90% are >65 yo). But since the flu is familiar to us and most of us have had personal experience with it, it seems to lack the sexy media appeal of the mysterious hemorrhagic fever of Ebola.

So let's first discuss the facts about influenza. Flu season is in the winter months and typically peaks in February. The incubation period of the virus is about 1-2 days. People are infectious about 24 hours *before* they get symptoms and can stay contagious up to 5-7 days after getting sick. People with flu can spread it to others up to about 6 feet away. (*cont'd next page)*

Most experts think that influenza is spread mainly by respiratory droplets expelled when people cough, sneeze or talk. Symptoms include an *abrupt* onset of fever, cough, myalgia, runny nose, and sore throat. Symptoms peak after day 2-3 and are much better about 3-7 days later. This is good information to give to your patient at discharge. They typically seek medical treatment on day 2 or 3, at the peak of the illness. A little reassurance that they are experiencing the worst of it can go a long way. Many patients are such strong believers in antibiotics for viral diseases because of this phenomenon. Get sick, see doc on day 2-3 (peak), get Z-pak, get better—Doc and Zpak get all of the credit. Sound familiar? Lets give credit where credit is due—to your body's own immune system.

Rapid Testing. Rapid influenza testing is great in theory. However, the sensitivity is awful (between 40-80%). So it would be foolish to base the decision to treat or not on the rapid test. The specificity is quite good so if the swab is positive, chances are it actually is influenza. So when should you be sending the influenza test? **It is rare that a positive test will change your management**. However, you might consider it in a young patient with a fever and a headache where you might otherwise perform a lumbar puncture, blood cultures, labs and give antibiotics unnecessarily. In this case the flu swab is worth it because it saved unnecessary blood draws, time, and money. So my recommendation is this: when it comes to deciding on ordering a flu swab ask yourself a question. Am I ordering this test to decide on giving antiviral meds? If that is your rationale (and we will get to the topic of antivirals later), then testing is not warranted nor is it cost effective. If you are looking at a patient during flu season with flu symptoms then your diagnosis is made—it's the flu, no need for a flu swab. Decide on your therapy and treat them for the flu. With the aforementioned abysmal sensitivity, a negative flu swab does NOT mean it's not influenza. And at a cost of $232 for a single flu swab it hardly seems worth it. Bottom line – if your patient is suitable for fast track, then a flu swab probably isn't necessary. However for the sicker patients that you are considering more of a workup and possibly admission then a positive flu swab might be the stop sign that your patient needs to avoid an unnecessary additional workup.

Treatment. The drug most commonly used for influenza is Tamiflu (oseltamivir). At an average price of $120 for a typical 5 day course, it is widely prescribed and purchased by patients desperate for relief. For years there was controversy surrounding its use because the manufacturer *Roche Pharmaceuticals* refused to release 8 of the 10 trials that they had funded on the drug. After public pressure mounted, they finally agreed to release some of the data and it was independently reviewed and published by the Cochrane Database in 2012. There were three outcomes that were reviewed:

- **Does it reduce subjective symptoms?** Yes. If you presented in the first 48 hours and were given oseltamivir compared to placebo, it reduced myalgias, fevers and flu-like symptoms. It reduced the duration of these symptoms by one day. However, it *increased* nausea and vomiting. Critics say you are trading one symptom for another and at a price of $120 it may not be worth it.
- **Does it reduce complications such as pneumonia and mortality?** This has important implications for public health. Looking at the unpublished and published data between oseltamivir versus placebo, **there is no effect.** This includes the studies on the elderly and chronically ill.
- **Does it reduce the spread of disease?** It doesn't appear to. It may reduce the chances of getting culture proven influenza among contacts of a patient taking oseltamivir but they seem to get sick just as often.

The bottom line is that Tamiflu probably has limited value in shortening the duration of flu in a specific subset of patients presenting in the first 48 hours of illness, but it should NOT be touted as a public health wonderdrug or a cure. Talk to your patient armed with this data and involve them in the treatment decisions.

IF YOU HAVE A TOPIC YOU WOULD LIKE TO SEE DISCUSSED IN A FUTURE EDITION, PLEASE SEND IT TO DR. JASON MANSOUR AT JMANSOURMD@GMAIL.COM