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Post #47 How to Optimally Utilize Tamiflu

The take home message is that because of side effects and costs, using Tamiflu during the flu season should not be a knee-jerk reaction.

Every year in the United States, the CDC estimates that influenza results in between 9 million – 45 million illnesses, between 140,000 – 810,000 hospitalizations, and between 12,000 – 61,000 deaths (approximately 100 – 200 being pediatric fatalities; typically 80% not vaccinated).

In the United States, the immense burden of the flu is unparalleled by any other pathogen, but fortunately there is a vaccine and antiviral medications which help to mitigate the yearly morbidity and mortality wrought by influenza.

Because the flu changes its shape every year by a process called antigenic shift and drift, it is necessary for individuals to receive annual flu vaccines to maintain optimal protection against the virus. Protection from illness proffered by the immunization typically wavers between 40 – 60% in any given year; it is by far the best, no-brainer weapon that modern medicine has to offer against influenza. This author races to have it completed for his entire family every flu season as soon as the vaccine is available.

Beyond the vaccine, there are several antiviral medications that are also helpful in combatting the flu. To be clear, the antiviral medications are second line treatment as they are less effective, more expensive, and carry more side effects.

The most common antiviral medication we use in pediatrics is Tamiflu (Oseltamivir), which is the only medication approved in children under 7 years of age. It works by inhibiting one of the key enzymes of the flu virus called neuraminidase. Tamiflu does not kill the flu virus, rather it slows down its ability to replicate, allowing the body's immune system to eventually (hopefully) overcome the virus.

When given within the first 48 hours of the illness, it has been shown to reduce the overall duration of symptoms by approximately one day. In patients who are sick enough to warrant hospitalization, there are benefits to utilizing Tamiflu even outside of the initial 48 hour window as it can decrease the risk of complications from the flu.

Overall, Tamiflu is well tolerated; but there are side effects, the most common being:

- Gastrointestinal complaints (such as vomiting) in 14% of Tamiflu recipients
- Neurological complaints (such as hallucinations) in 5% of Tamiflu recipients

Although Tamiflu can be an effective anti-flu medication, because of its side effects, timing constraints, and cost, like every other tool in medicine it must be utilized with judicious discretion. It is important to note that unlike the flu vaccine, where the protection lasts

throughout the flu season, the benefits of Tamiflu are short-lived and are limited to when it is being ingested.

During the flu season parents often request Tamiflu as either treatment for an ill child or for prophylaxis to protect their healthy children.

Some quick (but not all encompassing) criteria for when to consider Tamiflu, given that a flu test is positive, is as follows:

Child has had symptoms less than 48 hours AND is less than 2 years of age OR has an underlying health condition such as asthma, diabetes, or some other type of chronic illness.

In most children, who meet this criteria, Tamiflu should be strongly considered; however, if the child appears well and has good follow-up available, Tamiflu can be deferred.

Conversely, some quick (but not all encompassing) criteria for when to consider NOT utilizing Tamiflu, even when a flu test is positive, is as follows:

Child has had symptoms for longer than 48 hours OR appears well and is responding appropriately to fever reducers. Especially, if they are vaccinated, the necessity of Tamiflu decreases.

The three most common scenarios we are confronted with in our pediatric practice are as follows:

1. **Child is sick and has a documented positive test confirming the flu.** Generally, if the child has been sick for less than 48 hours AND is less than 2 years of age or has any underlying health conditions such as asthma, it is prudent to start a five day course of Tamiflu ASAP. If the child is acting well and responds favorably to fever reducers there is less onus to giving Tamiflu, especially if they are appropriately vaccinated against the flu.
2. **Child is sick but does not have a documented positive test confirming the flu.** Because of the side effects and cost of Tamiflu, whenever possible, it is prudent to have a confirmatory test of flu completed before committing to treatment. One caveat to this is if a recent family member has tested positive for flu AND it has been less than 48 hours since exposure AND the child clearly has flu-like symptoms, there may be value in starting Tamiflu ASAP. However, similar to scenario one above, unless they are under 2 years of age or there is a chronic medical condition, Tamiflu may not be needed - especially if they have been properly vaccinated.
3. **Child is well but has been exposed to the flu.** Per Uptodate.com: "Postexposure prophylaxis is not routinely recommended for otherwise healthy children but may be warranted within 48 hours of exposure for children who have had close contact with a confirmed or suspected case of influenza during the infectious period (ie, one day before the onset of symptoms until 24 hours after the fever ends) AND who are at high risk for complications of influenza. Postexposure prophylaxis should be used only when antivirals can be started within 48 hours of the most recent exposure." It should be noted

that postexposure prophylaxis has modest benefits which end as soon as Tamiflu is no longer being taken.

The bottom line is, whenever possible, a confirmatory flu test can help best guide treatment. And of course, consulting your pediatrician can help you make the best decision as to if and when to initiate treatment.

It is always a bit confounding, each flu season, to observe several families who openly embrace Tamiflu, while shunning the flu vaccine because they are concerned about putting "synthetic" material into their child's body.

Our pediatric offices deal with far more side effects from Tamiflu yearly - including vomiting and hallucinations - compared to the relatively nominal side effects of the flu vaccine, which are redness, swelling, and pain at the site of injection.

When used properly, Tamiflu is an effective weapon against the flu, but the best protection for your child is to immunize them against influenza each and every winter. The flu can be a dangerous disease, but with proper preparation and care, you can significantly mitigate the risk to your family.