In Long-Term Care Facilities

What is oseltamivir (Tamiflu®)?
Oseltamivir is a new medication for treating or preventing influenza. It is one of the neuraminidase inhibitors available for influenza control.

What is influenza?
Influenza, or more commonly “the flu”, is an illness caused by influenza A or B viruses. People with influenza feel unwell and develop fever, muscle aches, cough, and/or headache. Healthy individuals are generally sick for about 6 days and often miss work and/or school. People over the age of 65 years and those with chronic illness are sick for longer and may develop serious complications such as pneumonia. Influenza B is usually less severe but can still be associated with pneumonia, hospitalization and death. About 2,000 Canadians die each year from influenza.

Why is influenza a concern in long-term care facilities (LTCF)?
Residents of LTCF are usually elderly and often have one or more chronic illness. Because of this, they are at risk of serious complications of influenza. About 10% of nursing home residents infected with influenza need to be admitted to hospital, and 7% will die from their infection. Influenza is very contagious. In nursing and retirement homes, influenza outbreaks occur frequently – as often as once every two years in any one LTCF.

Does the vaccine protect people against influenza?
Vaccination is the most important method of protecting against influenza. However, for LTCF residents, vaccination is not always enough. In healthy people, vaccination is very effective in preventing symptoms of influenza. For LTCF residents, vaccination prevents 60-80% of hospitalizations and deaths from influenza. It prevents only 30-40% of influenza symptoms. Before regular influenza vaccination, influenza outbreaks were more common than they are now, and up to 70% of infected residents died. Because influenza vaccine is now routine, there are fewer outbreaks and only about 7% of residents who get influenza die. However, there are still too many outbreaks and too many deaths.
How do we treat influenza?

Until 1999, the only drug that was available in Canada to treat influenza was amantadine (Symmetrel). This medication is only effective against influenza A, and has no effect against influenza B. For people over the age of 65 and people whose kidneys do not work properly the dose of amantadine must be reduced. Common side effects include irritability, difficulty sleeping, nausea, confusion, and loss of balance. Amantadine is effective in preventing influenza A. During outbreaks, if amantadine is given to those who have not yet become ill, the outbreak is usually stopped within 2-3 days.

What are oseltamivir and zanamivir?

Oseltamivir (brand name: Tamiflu®) and Zanamivir (brand name: Relenza®) are two newer anti-influenza drugs that are effective against both influenza A and B. Both antiviral agents inhibit a necessary viral enzyme called neuraminidase. This enzyme is required by the virus to multiply, spread from cell to cell and, eventually, spread to other susceptible individuals. Oseltamivir is a pill. Zanamivir is available as a powder that is inhaled; this may be difficult for some LTCF residents.

How well do these new drugs work for treatment and prevention of influenza?

When given within 36 to 48 hours of onset of illness, both of these medications shorten the length of time people are ill by 1-2 days. There are few data on how well these drugs work in treating influenza in older people with chronic illness, but treatment does seem to improve outcome.

These drugs can also be given to people who have been exposed to influenza to prevent them from getting sick. Both drugs prevent about 70%-80% of influenza cases when they are used in this way.

Will they work as well as amantadine in protecting residents of LTCF from influenza?

Although more data are needed, it appears that both new antiviral drugs are about as good as amantadine without the associated side effects (irritability, difficulty sleeping, nausea, confusion, and loss of balance).

What side effects are associated with these new medications?

Studies conducted with oseltamivir showed that 1 to 9% of participants that were given the drug reported some mild gastrointestinal symptoms (nausea & vomiting). Nausea is worst with the first dose of the medication. Gastrointestinal symptoms can be reduced when the medication is taken with food. In residents of LTCF, 1-3% may also report headache. In the studies conducted on zanamivir, participants who took the drug reported no side effects. Because zanamivir is inhaled, some people with bad asthma may get some irritation of the breathing passages.
**What are the recommended doses?**

**Oseltamivir:** **Treatment** dose is 75 mg BID for 5 days (total of 150 mg per day). **Prophylactic** dose is 75 mg OD. Prophylaxis should continue until 8 days following contact with a symptomatic case, and during outbreaks, until the outbreak is declared over. The first dose should be given as soon as possible after the outbreak is identified, and be given with food. Subsequent doses can be given with breakfast. To date, no serious adverse events have been identified with oseltamivir.

**Zanamivir:** **Treatment** dose is 10 mg inhaled twice a day (BID) for 5 days. **Prophylactic** dose is 10 mg once a day (OD). **Prophylaxis** should be continued until 8 days after the last exposure to a symptomatic case. During outbreaks in LTCF, prophylaxis should be continued until the outbreak is declared over. Dosing is not dependent on kidney function or serum creatinine levels. Zanamivir coats the surfaces of the throat and breathing passages and is not absorbed into the body. People with bad asthma may develop a cough and/or some wheezing when using this drug. Pre-medication with the appropriate inhaler (e.g., salbutamol) may be used.

**Should the dose of oseltamivir be adjusted for kidney function (creatinine clearance)?**

Oseltamivir is excreted through the kidneys so people with reduced kidney function will have higher levels of this drug. However, the drug is very safe; an increase in levels does not increase the risk of adverse events. This does not mean that residents need to have a creatinine clearance estimated before oseltamivir can be started.

For treatment, if no serum creatinine has been measured, and there is no reason to suspect kidney failure, 75 mg BID x 5 days is a safe dose. People with a creatinine clearance of 10-30ml/min should reduce the dose of oseltamivir to 75 mg OD x 5 days. For people with creatinine clearance of <10ml/min, treatment decisions should be made on an individual basis.

For prophylaxis, people with a creatinine clearance of <30ml/min should reduce the dose of oseltamivir to 75 mg every other day.

**How are these medications taken?**

Oseltamivir is taken by simply swallowing a pill. Because some individuals may experience mild gastrointestinal symptoms (nausea and vomiting) it is recommended that oseltamivir be taken with food (this is particularly important for the first dose).
Oseltamivir & Zanamivir

Zanamivir is taken by inhalation (breathing in). It employs a device called a “Diskhaler™” that contains a disc with blisters of powdered zanamivir. The disc is put into the device, and punctured, so that the powder falls into a “chamber” from which it can be inhaled. To take the drug once the blister has been punctured, simply follow these steps:

- Exhale (breathe out)
- Close lips around the tube (mouth piece) on the device making a seal, and
- Inhale (breathe in)

Who should not take oseltamivir or zanamivir?

Studies so far have found no evidence that these drugs are harmful in pregnancy. However, data are limited. The use of any medication during pregnancy should be limited only to those situations where the potential benefit to the mother and fetus justifies the possible risk. Information is not yet available as to whether either of these drugs is excreted in breastmilk. Use of these antiviral drugs in mothers who are breastfeeding should be limited to circumstances in which the potential benefit to the mother and baby justifies the potential risk.

More information can be obtained from

Durham Region Health Department, Environmental Help Line
905-723-3818 or 1-888-777-9613