Influenza

Can we vanquish this foe?

Chris Hogan

(Australian Family Physician, vol 31, No 2, feb 2002, 145-147)

While there are few certainties in medicine, we now have a real chance to deal with one of our ancient foes - influenza.

In the past we downplayed its effect and its danger as we had no effective treatment. However, influenza is very infectious. Every year, up to one in five Australians could be infected with the influenza virus.

The tissues affected are the mucosal linings of lung, sinuses and middle ear where the virus, let alone secondary bacterial infection can wreak severe, even lethal havoc. This havoc most commonly affects those at risk (people aged over 65, Aboriginal and Torres Strait Islanders, individuals with chronic cardiac, pulmonary, renal and metabolic disorders and the immunocompromised), but can also affect the previously well. These complications occur in nearly 20% of influenza infections and result in some 2.000 deaths each year in Australia.

Clinical attention is now being paid to the second week of influenza, when most have recovered from their primary symptoms and returned to usual duties. There is the suspicion that there is psychomotor impairment as a direct result of infection, resulting in slower cognition and reduced coordination.

The extent of this impairment is yet to be quantified, but it may be significant. Close recent epidemiological analysis suggests influenza may be even more powerful than we thought it was. As GPs we are aware that there is an increase in mortality in winter and we blame it on climatic factors. However, epidemiologists now suggest such an increase in mortality and morbidity is proportional to the incidence of influenza in that season. Australian actuarial data from 1968 to 1982 shows that in years when influenza deaths were elevated, total mortality was as much as eightfold higher. It is most noticeable in those suffering from the complications of diabetes, cardiovascular disease (mainly via cerebrovascular accidents, myocardial infarction and cardiac failure) and COPD and asthma. This of course requires further analysis and direct study.

How do we know it's flu?

Once influenza is proven to be active in the community, clinical diagnosis is as accurate as current rapid reagent tests in diagnosing influenza, ie, around 70-80% each.

Influenza is characterised by a sudden onset of debilitating symptoms that can include fever and/or chills, body aches and pains, fatigue, cough and headache (Table 1). Table 2 details

the difference between influenza (so called 'true flu') from a simple cold.

Table 1. Influenza checklist

A sudden onset of:

- ➤ fever (38.5°C or more) and/or chills
- ➤ body aches and pains

Plus:

- ➤ headache
- ➤ dry cough
- ➤ fatigue.

An ounce of prevention

Immunisation remains the keystone to the management of influenza (Table 3). It appears that among those who are not immunised, 75% of complications affect the 15-64 age group. Vaccination approximately halves influenza associated pneumonia and cuts respiratory associated hospitalisations by about one-third. Current inactivated influenza vaccines are reliably effective for preventing the serious consequences of influenza in the elderly.

These figures indicate that immunisation has limitations as vaccination does not work for everybody. There are those, especially the old, sick and frail who do not immunise particularly well but are not helped by another booster of the same strains.

The best way to protect those at risk is to immunise them and those who may transmit the virus to them. Unfortunately the usual immunisation rate quoted for medical and allied health personnel is around 20%.

In Europe intranasal vaccines are available for the immunisation of children against influenza and the studies that support this vaccine's effectiveness claim a significant reduction in the annual incidence of ear infections, total annual doses of antibiotics and reduction in the number of days away from child care, school or both.

Why immunise the contacts of those at risk and not simply exclude those with symptoms? There appear to be subclinical infections of infectious influenza. Elder et al studied 518 health care workers at four acute care hospitals in Glasgow during the 1993-1004 influenza A epidemic. Only 30% of workers reporting symptoms of influenza showed evidence of seroconversion, indicating that self misdiagnosis was high. Furthermore, 59% of seropositive workers could not recall an influenza-like illness, and 28% cold not recall any respiratory illness during the season, indicating high levels of subclinical infection.

Treatment

There are two neuraminidase inhibitors (NAIs) available now in Australia for the treatment of all strains of influenza A and B:

- ➤ zanamavir (Relenza), an inhaled powder system (two doses twice a day for five days)
- ➤ oseltamivir (Tamiflu), (one 75 mg capsule twice daily for five days).

Table 2. Influenza versus the common cold

Symptoms	Influenza	Common cold
Onset of symptoms	Sudden onset of symptoms which worsen within hours. Patients can often remember the exact time the illness began.	Gradual onset of symptoms.
Sore throat	Extremely sore throat "like a lion clawing at your tonsils".	A scratchy throat, less severe.
Temperature	High temperature, up to 41°C as the body seeks to overheat and kill off the virus.	Usually small increase in temperature.
Headache	Always associated with severe headache.	Minor headache occasionally.
Aches and pains	Sudden onset. Causes the whole body to ache, particularly the joints. Fatigue and weakness present.	Mild aching, usually confined to the legs.
Coughs and sneezes	Coughing is usual but sneezing is rare.	Sneezing and nasal congestion is common because the cold virus concentrates in the nose.
Course of illness	Unwell for 1-2 weeks, chest problems common.	Rapid recovery.
Complications	Severe eg, pneumonia, sinusitis, bronchitis and otitis media in children.	Mild.

The NAIs work by preventing viral replication in the cell and by rendering virus particles susceptible to being swept up by nasal, sinus and bronchial secretion. Both were made possible

by work done in Melbourne which mapped the shape of various receptors on the flu virion. While the influenza virus mutates frequently, the neuraminidase receptor remains a highly conserved site from flu virus to flu virus and does not vary with mutation. Drug resistance is low so far, less than 2% in the clinical trials, and those resistant strains that have been detected are less virulent, less powerful and less dangerous.

The side effect profile for Tamiflu is low with nausea being noticed in approximately one in 10 patients on the first dose. This is reduced by taking it after food. These agents are highly specific for influenza A and B, and if the NAIs are given for an illness other than influenza A or B, they will simply have no effect.

How effective?

Treatment benefit is apparent 24 hours after administration and reduces the severity of illness symptom scores by about 40%. Recent data for oseltamivir shows that duration of illness can be halved if treatment is started at symptom onset. Secondary complications associated with influenza such as sinusitis, bronchitis and pneumonia are reduced by up to 50% as is the subsequent need for antibiotics.

Table 3. Influenza vaccine recommendations

Annual vaccine is recommended for:

- adults over 65 years.
- Aboriginal and Torres Strait Islanders in at-risk groups
- Individuals at increased risk of influenzae related complications
    - those with chronic disorders of the pulmonary and circulatory system (not routinely recommended for all asthmatics but only for those with severe asthma)
    - those with chronic metabolic or renal disorders
    - the immunocompromised
    - residents of nursing homes and long term residential facilities
    - children and teenagers of long term aspirin therapy who may develop Reye syndrome after influenza
- those who may transmit influenza to persons at risk
    - health care workers
    - staff of nursing homes
    - home care providers
- consider in those who provide essential community services.

Those who should not be vaccinated

➤ individuals with anaphylactic sensitivity to eggs

➤ patients with confirmed history of Guillain-Barre syndrome associated with influenza vaccine.

Use with caution in

➤ patients taking theophylline, phenytoin and warfarin owing to potential enhanced drug effects or toxicity.

Conclusion

Influenza cannot be eradicated easily. It is a simple virus that can shift from species to species and mutate relatively easily compared with other viruses. Immunisation is still essential. Research is progressing to develop better vaccines that work for more than one strain of influenza. Even when we have an effective vaccine, we must convince our patients, our colleagues and ourselves to actually take it!

Summary of Important Points

➤ Flu cannot be eradicated easily. Immunisation is still essential.

➤ Compliance to vaccination is an issue for all, not just those at risk.

➤ Treatment must be administered within 48 hours of symptom onset to be effective.

➤ Beware of diagnosing flu outside of an outbreak. Flu like symptoms are severe. If there is not an outbreak it is possible the symptoms are arising from another condition such as a severe bacterial illness. Exercise due clinical care, avoid making a rushed decision and keep good notes.

➤ While the NAIs are effective, they are on private script and not on the PBS. It is a clinical decision to determine if a patient might benefit from a medication. It is the patient's decision as to whether or not they can afford it.