

In brief

Oseltamivir (Tamiflu) use in healthcare settings

25 July 2022

Questions

1. What is the evidence that use of oseltamivir in healthcare workers with a symptomatic influenza diagnosis result in an earlier return to work and reduced absenteeism? What is the likely reduction in the duration of absenteeism?
2. What is the evidence that use of oseltamivir in adults and children with symptomatic influenza reduces influenza transmission in health care settings? (Or where this has been inferred from either reduced viral shedding or reduction in viral load in respiratory samples on therapy).

Summary

Treatment of influenza in healthcare workers with oseltamivir and its impact on absenteeism

- Evidence on the effectiveness of antivirals in reducing absenteeism in healthcare workers with symptomatic diagnosis is lacking, and data on healthcare service disruption are not readily available.¹
- Antiviral drugs started within 48 hours of influenza onset, reduce the time until the patient is symptom-free by a mean of approximately 0.5 to 1.5 days.² Specifically, oseltamivir decreases the time until patients are symptom-free by approximately one day (21% reduction in time).³
- Oseltamivir treatment is associated with side effects including nausea and vomiting.³ Risk of side effects need to be balanced with the marginal benefits of treatment, especially in healthy individuals.
- Observational studies with no control groups note that outbreaks appear to end quickly if affected patients and staff are treated with oseltamivir.^{4,5} A modelling study found that absenteeism decreased from 10% to 8% with oseltamivir, compared to no treatment.⁶
- There are some reports of greater staff willingness to work during influenza outbreaks where antivirals are available.^{7,8}

Treatment of influenza in healthcare settings with oseltamivir and its impact on viral transmission

- Oseltamivir treatment appears to reduce symptoms and viral shedding by around one day.^{2,3}
- There is little evidence that oseltamivir treatment for healthcare staff reduces the spread of influenza to vulnerable patients.
- A recent review on antiviral treatment (including oseltamivir) noted that:⁹
 - Evidence on the effect of antiviral treatment on influenza virus transmission are lacking.
 - Observational and clinical trial data confirm that early antiviral treatment can reduce infection risk and illness in household contacts, although the magnitude of the effect has varied widely across studies and is highly dependent on timing.
 - Epidemiologic models indicate that prompt antiviral treatment could have major indirect benefits in reducing virus transmission.
- For inpatients:
 - For adults, commencing treatment earlier with oseltamivir leads to significantly shorter viral shedding duration.¹⁰

- A randomised controlled trial determined that there were no advantages to clearance of virus, mortality or tolerability when administering a double dose of oseltamivir in paediatric inpatients with severe influenza, compared to a single dose.¹¹
- For residential aged care facilities:
 - One study on Influenza A (no control group) demonstrated that nearly 80% of the 150 patients showed relief in symptoms (e.g. decreasing body temperature, relief in body aches) within two days of oseltamivir treatment, around 80% of the patients did not have a viral shedding detected on RT-PCR by the seventh day.¹²
 - In a randomised controlled trial, a 'treatment plus prophylaxis' strategy was more effective in reducing outbreak duration and influenza attack rate than treatment alone (23% versus 36%, $p=0.002$).¹³
- Most studies investigating viral transmission in the community contribute to the evidence that oseltamivir appears to lead to faster decline in viral load in infected individuals.¹⁴⁻¹⁶ However, a 2012 Cochrane review on children, noted that the benefit of oseltamivir in preventing the transmission of influenza in households, is modest and based on weak evidence.¹⁷
- Regarding viral shedding, randomised controlled trials in community settings have demonstrated that:
 - Oseltamivir decreased viral shedding (79 hours for the oseltamivir group versus 84 hours for the placebo group, $p=0.34$) but not time to resolution of clinical symptoms.¹⁸
 - Oseltamivir treatment was associated with a significant reduction period of infectiousness (inferred by shorter period for replicant-competent viral shedding).¹⁹
 - Median virus titre areas under curves were lower by 30–40% during the first four days of treatment in the oseltamivir groups than in a placebo group. Changes in median virus titre after 24 hours of treatment were significant ($p=0.0004$).²⁰
- Notably, a pharmaceutical study (WV15799) concluded that oseltamivir could prevent influenza in contacts by interrupting transmission from index cases, however, authors of a systematic review have highlighted problems with the study design.²¹

Grey Literature

- Relevant international clinical guidelines do not comment on this topic specifically.²²⁻²⁴

Background

- Oseltamivir (Tamiflu) is a neuraminidase inhibitor used in influenza treatment and prophylaxis.
- Many studies evaluating influenza prevention or reductions in transmission are not high quality, making it difficult to distinguish the role of individual variables. Multimodal infection control policies are thought to be most effective in reducing healthcare-associated influenza infections.²⁵
- However, understanding the role of antivirals in influenza management, both for patients and for staff, is important for forming policy and stockpiling medicines.

Methods

To inform this brief, PubMed and Google searches were conducted using terms related to influenza and oseltamivir on 27 June 2022.

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Evidence checks are archived a year after the date of publication