SWINE FLU EMERGING THREAT

DRUG REVIEW

Swine Influenza Flu (H1NI Virus): Therapeutic-Prevention Options and Guidelines

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The H1N1 viral strain implicated in the 2009 flu pandemic among humans often is called "swine flu" because initial testing showed many of the genes in the virus were similar to influenza viruses normally occurring in North American swine (1). But further research has shown that the outbreak is due to a new strain of H1N1 not previously reported in pigs. The 2009 H1N1 virus is not zoonotic swine flu, as it is not transmitted from pigs to humans, but from person to person (2).

Clinical Features

Body aches, especially joints and throat, extreme coldness and fever, fatigue, headache, irritated watering eyes, reddened eyes, skin (especially face), mouth, throat and nose. In children, gastrointestinal symptoms such as diarrhea and abdominal pain may occur (3).

Disease Diagnosis

Laboratory confirmation of cases is done by swabs taken from nose, naso-pharynx or throat preferably within 5 days of onset of illness. At this time, there are only two authorized assays for confirmation of novel influenza A(H1N1) virus infection, rRT-PCR and viral culture. The confirmatory testing of swabs from these sites is done at few specialized centers in the country using real time Reverse Transcriptase-Polymerase Chain Reaction (rRT-PCR) for confirmation. At present there is no validated bed-side test available for confirmation of diagnosis.

Management of Suspected or Confirmed cases

The management of suspected/confirmed cases of swine flu is same as for any other influenza infection.

1) ***General Measures:*** All suspected cases of influenza illness should be quarantined. Plenty of rest and fluids is advised along with use of antipyretics for control of fever. Careful monitoring of patients for symptomatic improvement/deterioration is required. Usually the illness will last for a period of one week. Populations at high risk of developing complications include children and young adults, obese individuals, patients with underlying COPD and diabetes.

2) ***Symptomatic Pharmacotherapy:*** Paracetamol in recommended doses should be given for controlling fever. The dose can be repeated till symptomatic control is achieved. Aspirin and other NSAID's should be avoided (especially in children) for risk of precipitating Reye's syndrome and hepatic failure.

3) ***Anti-viral agents:*** Two classes of anti-viral agents are available for control of infection: Adamantanes (amantadine and rimantadine) and neuraminidase inhibitors (NAIs) (oseltamivir and zanamivir). The current strain of swine flu is resistant to adamantanes. This leaves us with the option of NAIs only. Although H1N1 strain develop resistance against oseltamivir, but no other alternative except for zanamivir is currently available.

Guidelines for Treatment of H1NI

Center for Disease Control and Prevention (CDC), USA, recommends use of anti-viral agents in following group of patients (4).

a) High-risk groups: Children younger than 5 years, adults 65 years of age or more, persons with COPD, cardiovascular (except hypertension), renal, hepatic, hematological (including sickle cell disease), neurologic, neuromuscular, or metabolic disorders (including DM, immuno-suppressed individuals, pregnant women

b) All hospitalized patients

WHO guidelines (5) released on August 21, 2009, recommend use of oseltamivir for treating serious cases of influenza. All suspected/confirmed patients of influenza do not need anti-viral agents. WHO recommends using oseltamivir as soon as possible in serious cases or patients whose condition deteriorates over a period of time (Some cases can deteriorate after 5-7 days of onset of illness). Clinicians, patients and those providing home-based care need to be alert to danger signs that can signal progression to more severe disease. As progression can be very rapid, medical attention should be sought when any of the following danger signs appear in a person with confirmed or suspected H1N1 infection: shortness of breath, either during physical activity or while resting, difficulty in breathing, turning blue, bloody or coloured sputum, chest pain, altered mental status, high fever that persists beyond 3 days, low blood pressure.

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This recommendation applies to all patient groups, including pregnant women, and all age groups, including young children and infants. For patients with underlying medical conditions that increase the risk of more severe disease, WHO recommends treatment with either oseltamivir or zanamivir. These patients should also receive treatment as soon as possible after symptom onset, without waiting for the results of laboratory tests.

Dose of Oseltamivir for Treatment

By Weight:	
For weight <15kg	30 mg BD for 5 days
15-23kg	45 mg BD for 5 days
24-<40kg	60 mg BD for 5 days
>40kg	75 mg BD for 5 days
For infants:	
< 3 months	12 mg BD for 5 days
3-5 months	20 mg BD for 5 days
6-11 months	25 mg BD for 5 days

WHO guidelines do not discuss the use of antibiotic chemoprophylaxis in patients of swine influenza. When pneumonia is present, the antibiotic therapy should be based on the local community acquired pneumonia guidelines. Moderate to high dose corticosteroids are not recommended and are of unproven benefit in these patients. Oxygen therapy to maintain oxygen saturation above 90% (95% for pregnant women) should be initiated. (6).Adult patients should be discharged from observation 7 days after the symptoms have subsided and children should be discharged 14 days after subsidence of symptoms. All the patients and their care-givers should be taught to follow good hand hygiene and practices for prevention of spread of influenza at the time of discharge. Infection control precautions should continue in an adult patient for 7 days after resolution of symptoms and 14 days after resolution of symptoms for children younger than 12 years because of longer period of viral shedding expected in children.

Prevention of Infection

Quarantine: Close Contacts of suspected, probable and confirmed cases should be advised to remain at home (voluntary home quarantine) for at least 7 days after the last contact with the case. Monitoring of fever should be done for at least 7 days. Prompt testing and hospitalization must be done when symptoms are reported.

Cough Hygeine: recommended for all individuals with signs and symptoms of a respiratory infection.

-Cover the nose/mouth with a handkerchief/ tissue paper when coughing or sneezing;

-Use tissues to contain respiratory secretions and dispose of them in the nearest waste receptacle after use;

-Perform hand hygiene (e.g., hand washing with non-antimicrobial soap and water, alcohol-based hand rub, or antiseptic hand wash) after having contact with respiratory secretions and contaminated objects/materials

Hand hygiene is the single most important measure to reduce the risk of transmitting infectious organism from one person to other. Hands should be washed frequently with soap and water / alcohol based hand rubs/ antiseptic hand wash and thoroughly dried preferably using disposable tissue/ paper/ towel.

Anti-viral agents for prophylaxis: Antiviral medications can be used for seasonal influenza chemoprophylaxis among individuals at high risk for complications from influenza who have contraindications to influenza vaccination, among those with a presumed poor response to vaccine, or as an adjunct to vaccination in seasons with a known vaccine-wild virus mismatch (7).Studies have shown decrease in the incidence of disease following use of oseltamivir for prophylaxis. 75mg once daily for 10 days after the last contact for a maximal duration of 6 weeks is the recommended prophylactic dose and duration of oseltamivir for adults (8).None of the agencies have recommended the use of oseltamivir as a drug for prophylaxis of swine flu considering the cost-benefit ratio and development of resistance to one of the only 2 agents currently effective against this virus.

Vaccination: Vaccine against influenza A/H1N1 is available in the market from the pharmaceutical giant Baxter since August, 2009. More than 3,500 people have been vaccinated in large phase III trial of this vaccine (9).

References

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