

The Swine flu returns!

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The Swine flu is again making headlines in Nepal after four years. The first case of swine flu was detected in August 2009 in Mexico. Thereafter it spread across the continents ringing an alarm which prompted the World Health Organisation (WHO) to declare it a pandemic. Although it did not go to be as devastating as stated, it did claim lots of lives. After four years the seasonal flu is again the H1N1 flu virus designated as Influenza A H1N1/pdm 09, the same that caused pandemic in 2009. The swine flu virus is a novel virus. It evolved with genetic mixing of three types of influenza viruses: the swine flu virus, avian influenza virus and the human influenza virus. The resulting viral progeny was a new human influenza virus H1N1. This human influenza virus was new to our immune system. Hence it caused the severe disease and spread from one person to another by droplet nuclei creating an alarming situation which prompted the WHO to declare a pandemic in 2009.

Influenza virus causes lots of morbidity and mortality throughout the world every year. The three influenza virus A, B and C cause seasonal flu in humans. The influenza A causes most of the severe disease followed by B and both have capacity to cause epidemic. The C virus causes milder disease. An individual infected by the virus develops immune antigen making subsequent infection less likely. But the antigenic drift acquired by the virus and the reassortment of genetic material induced by the virus in the host cell as in case of swine flu makes it possible to escape host immunity and to infect large population at a time and also spread fast.

As mentioned above, predominant human influenza virus this season is influenza A (H1N1) pdm09. The first case in Nepal was detected in a government official in his mid fifties who had developed influenza like illness while travelling back from the US after a short visit and was proved to be the H1N1 pdm09. He succumbed to

the illness. Following this the Epidemiology Department of the Ministry of Health has reported five more fatal cases. Subsequently more cases were being detected in the month of April causing a bit of public alarm. The question in everybody's mind was can there be another pandemic?

The prospect of pandemic depends on the transmissibility and virulence of the virus and on the susceptibility of the population. This susceptibility may vary according to age and past exposure to influenza virus. Although a severe pandemic probably depends upon the emergence of a new antigenic type of influenza viruses, it is not necessary that every new strain causes severe disease. The recent spread of influenza (H1N1) pdm 09 virus suggests that despite its ongoing circulation since 2009, population immunity is not sufficiently high and many people remain susceptible. Surveillance data till now provided no evidence of significant antigenic drift in the circulating H1N1 virus strain. Hence we assume that the susceptibility was due to presence of previously uninfected individuals in our population as well as low rate of vaccination. Another possibility is low level of antibody which could not protect from the disease. It has been seen from the past experience that although previously healthy individual can have severe disease, certain groups are at more risk of complications. They include children less than two years, elderly, pregnant ladies, and people with chronic systemic illnesses. The pandemic 2009 showed that mortality was high among hospitalized middle aged adult, showing the trends for this season too.

Symptoms of influenza virus infection start after an incubation period of one to three days. They present with fever, cough, headache, and nasal stuffiness, loss of appetite and pain abdomen and diarrhoea in children. In elderly population fever may not be there. Complications

may range from severe pneumonia and ARDS to multiorgan failure.

Proper diagnosis of influenza is very important from the public health point of view. Some confusion prevails among clinicians regarding diagnosis. Nasopharyngeal swab or aspirate specimens collected within three to four days after illness begins have the highest yield for detection of influenza viruses but nasal swab specimens may be acceptable. Antigen detection tests (rapid influenza diagnostic test and immune fluorescence assays) lack sensitivity and can be used for screening. Reverse transcription polymerase chain reaction (RT-PCR) assay is recommended for hospitalized patients to avoid false positive or negative diagnosis.

Hospitalized patients with this disease should be started on antiviral medication which decreases the severity of illness and duration of disease. They should be isolated or if necessary cohorted. Gloves and mask are a must. For medical procedures during which a patient may generate aerosol, a fit tested N 95 respirator is indicated for health care personnel. Influenza prevention should be strengthened throughout the hospital, with surveillance for nosocomial influenza, restriction of sick healthcare personnel, and screening for visitors. Above all strict following of the six-step hand wash protocol after each contact with patient and in between two patients definitely decreases transmission. To wrap up, timely shot with the influenza vaccine will definitely prevent infection and it is never too late to be vaccinated.

REFERENCES

1. Zimmer SM, Burke DS. Historical Perspective — Emergence of Influenza A (H1N1) Viruses. *N Engl J Med.* 2009;361:279-85.
2. Fineberg HV. Pandemic Preparedness and Response — Lessons from the H1N1 Influenza of 2009. *N Engl J Med.* 2014;370:1335-42.
3. Neopane A. The Swine Flu pandemic in Nepal. *Kathmandu Univ Med J.* 2009;7(4):339-40.
4. Uyeki TM. Preventing and Controlling Influenza with Available Intervention. *N Engl J Med.* 2014;370:789-91.