Swine Flu Pandemic: Bangladesh perspective

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Swine flu: also known as Swine influenza, hog flu, pig flu and swine is an infection caused by any one of the several types of Swine Influenza virus. Swine Influenza Virus(SIV) is any strain of the influenza family of viruses that is endemic in pigs. SIV also includes influenza C and subtypes of influenza A known as H1N1, H1N2, H3N1, H3N2, H2N3[1]. Influenza A virus subtypes H1N1, H1N2 and H3N3 are the common strains world wide.

Influenza Virus: The influenza is a single stranded RNA virus capable of producing epidemic and Pandemic. The nucleoprotein core determines the virus type (A,B,C) while surface lipid bilayer contain viral hemagglutinin and neuraminidase which determines the subtype (H1N1, H5N1, H3N2). Host antibodies to hemagglutinin and neuraminidase prevent future infection with influenza virus. Seasonal influenza symptoms include Fever, headache, aching muscles, exhaustion of feeling weak, loss of apetite, sore throat, running or stuffy nose, and dry cough.

Influenza C: virus infect both human and pigs and not in Birds. This has caused small outbreaks of mild form of influenza in Children in Japan and California. Because of its limited host range and lack of genetic diversity this form of influenza does not cause pandemics in human.

Although Swine influenza virus transmission is common in pig population but transmission of virus from pig to human is not common and does not always lead to human influenza. Often this trans mission leads to development of antibodies in human. If there is transmission from pig to human and cause human influenza it is called zoonotic. People who are regularly exposed to pigs are at increased risk of Swine flu infection. The meat of an infected animal has no risk of infection if properly cooked.

Recent outbreaks: First in Mexico city with death of about 800 cases and later spread globally with more deaths has provoked the WHO to declare a global Pandemic and international alert 6. H1N1 virus from swine have infected human. This is a new virus and current outbreak globally indicates person to person contact and infection spread. Latest data upto 2nd October 2009 published by WHO shows 6,336 cases and 36 deaths in African region,120, 653 cases and 2, 467 deaths in American region, 9, 844 cases and 51 deaths in Eastern Mediterranean region,49,00 cases and 128 deaths in Europe, 22,386 cases and 221 deaths in South East Asia region,69,387 cases and 306 deaths in Western Pacific region with highest number of mortality in Brazil, USA, Argentina

Till September 2009 over 600 cases swine flu have been confirmed in Bangladesh and three official death from swine flu was reported.

Previous Outbreaks of Swine Flu

In 1988 September, Swine Flu has killed one women and infected others in USA. The pathogen identified was an H1N1. In 1998 Swine Flu was found in pigs in four American states.

In August, 2007 small outbreak of Swine Flu was seen in Philipines.

Symptoms of Swine Flu

In Pigs-Fever, Lethargy, Sneezing, coughing, difficulty in breathing and decreased apetite.

In human: similar to those of influenza and of influenza like illness in general. These includes fever, cough, sore throat, bodyaches, headaches, chill and fatigue. 2009 outbreaks showed an increased incidence of diarrhea and vomiting.

Diagnosis

Direct: Identification of virus by culture, the Gold standard test.

Indirect: Detection of Nucleic acid or viral antibody by PCR.

Treatment : Includes vaccination against the virus and antiviral drugs.

Vaccine: Produced by GlaxoSmithKline is known as Pandemrix now available in UK and can be used in adults and children over six months and pregnant women. Early trial data have suggested good immune responses with just one dose of the vaccine. However EMEA is recommending two doses of

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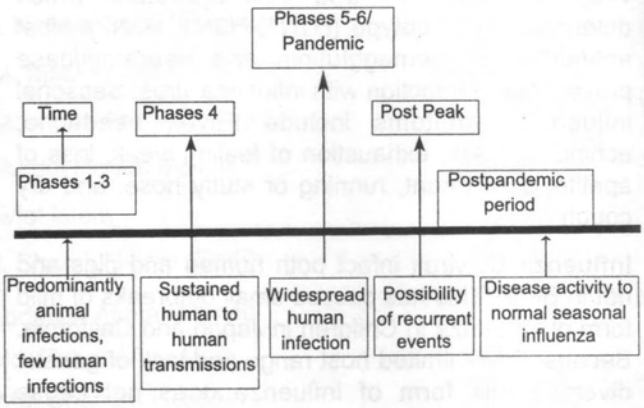
vaccine. The GSK flu vaccine is made in eggs. The H1N1 virus is injected into eggs where it multiplies before being harvested, purified, and chemically inactivated so that it can not cause flu but can prompt immune response. The resultant vaccine particle is then tested and added to the vaccine. Some vaccine agencies are advocating addition of an adjuvant-a chemical that boosts the immune response. The vaccine is tried clinically over 9000 adult healthy volunteers and, children and elderly. The common side effects found are headache, joint pain, muscle pain and reaction at the site of injection (pain, redness) fever and fatigue. It is well tolerated. Effective vaccine is available now in developed countries. But due to high price of the vaccine and as vaccine has not yet being produced commercially and available for all countries, in Bangladesh we have to strictly follow the preventive measures, isolate the suspected cases, diagnose it properly and then appropriate antiviral therapy should be administered. Tablet Oseltamidir (Relenza,Tamiflu) 75 mg 1 capsule BD for 5 days is the treatment. Treatment should be started within two days of symptoms. Besides antiviral drugs supporting treatment like controlling of fever, relieving pain, maintenance of fluid balance and identifying and treating any secondary complications is also necessary. This antiviral treatment is effective against all types of Influenza virus. There is adequate supply (40 lac doses) of antiviral drugs in Bangladesh. So, there is no need to be panic by this pandemic. The medical professionals specially the laboratory medicine people has important responsibilities to disseminate this message to the people by holding seminars, symposium, discussion, publishing article in papers, news media and radio, television In a poor country like ours prevention is the best policy rather than curative as we shall not be able to bear the cost of curative treatment.

Preventive measures: Include using of masks; avoid attending crowding places like school, play ground, theatre, Cinema, public rally etc and washing hands face frequently with soap. Avoid touching your mouth,nose and eye because infection spreads in those routes. Personal main ainence of good physical activity, drinking of fresh fruit juices, balance adequate diet, good sleep is also helpful. If there is flue like symptoms isolation, confinement and rest at home or hospital until the symptoms subsides. Keeps at least one yard distance from a person having flue and advice anybody making cough, sneezing,watering or discharging from nose to uses tissue paper, handkerchief, towel. Use of swine flue disinfectant, room fogger and aerosol spray is also effective.

What is Pandemic: Current WHO phase of Pandemic alert.

In the 2009 revision of the phase descriptions, WHO has retained the use of a six-phased app easy incorporation of new recommendations and approaches into existing national preparedness response plans. The grouping and description of pandemic phases have been revised to make easier to understand, more precise, and based upon observable phenomena. Phases 1-3 cor preparedness, Including capacity development and response planning activities, while Phases signal the need for response and mitigation efforts. Furthermore, periods after the first and are elaborated to facilitate post pandemic recovery activities.



In nature, influenza viruses circulate continuously among animals, especially birds. Even that viruses might theoretically develop into pandemic viruses.

In **Phase 1:** No viruses circulating animals have been reported to cause infections in humans.

In **Phase 2:** An animal influenza virus circulating among domesticated or wild animals is knov caused Infection in humans, and is therefore considered a potential pandemic threat.

In **Phase 3:** An animal or human-animal influenza reassortant virus has caused sporadic cases,. Clusters of disease in people, but has not resulted in human- to-human transmission sufficient community-level outbreaks. Limited human-to-human trans mission may occur under some circumstances for example when there is close contact between an infected person and disease outbreaks in a community marks a significant upwards shift in the risk for a pandemic country that suspects or has verified such an event should urgently consult with

WHO so that situation can be jointly assessed and a decision made by the affected country if implemental rapid pandemic containment operation is warranted.

In Phase 4: Indicates a significant increase pandemic but does not necessarily mean that a pandemic is a forgone conclusion.

In Phase 5: Is characterized by human-to-human spread of the virus into at least two countries WHO region. While most countries will not be affected at this stage, the declaration of Phase strong signal that a pandemic is imminent and that the time to finalize the organization, com and Implementation of the planned mitigation measures is short.

In Phase 6: The pandemic phase, is characterized by community level outbreaks in at least one country in a different WHO region in addition to the criteria defined in Phase 5. Designation phase will indicate that a global pandemic is under way.

Conclusion

Although Swine flue has been declared pandemic by WHO and it has almost involved about 180 countries across six continents and till now there are about 800 deaths throughout the world including 3 in Bangladesh there is no need to panic. Increase public awareness, simple preventative measures as described, if followed will contain the infection. Adequate and strict preventive measures, identification and isolation of suspected cases, appropriate supportive treatment, treatment of diagnosed case with antiviral drugs and vaccination of susceptible, when vaccine is available if followed will reduce the morbidity and mortality in this pandemic.

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