Swine Flu

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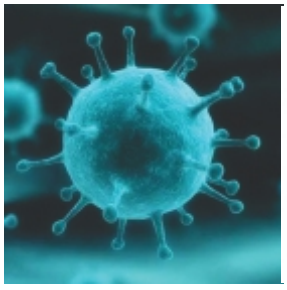
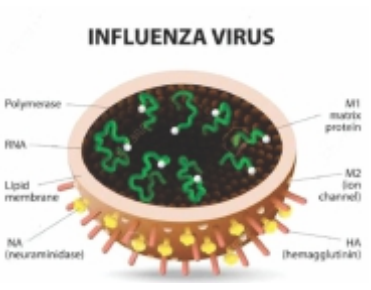
Abstract

Swine flu refers to swine influenza or the viral infection caused by any of the several types of influenza virus. Swine flu can produce a number of symptoms in both adults and children. In India day by day the graph of infected person has been climbed up so, it is important to take into consideration about this disease as it may prove deadly one. It transmitted to humans via contact with infected pigs or environments contaminated with swine influenza viruses. The scientists call this a 'quadruple reassortant" virus. This is a dangerous scenario in 21st century. So, there is a need to prevent and to treat the swine flu all over the world. Here we reveal that complete drug therapy for this disease for swine flu in several medicinal systems and prevention techniques like vaccine therapy.

Introduction :





Respiratory tract infections are the most common infectious diseases. Upper Respiratory tract infections (URIs) includes rhinitis (common cold), sinusitis, ear infections, acute pharyngitis, tonsillopharyngitis,epiglottitis, and laryngitis of which ear infections and pharyngitis cause the more severe complications. The vast majority of URIs has a viral etiology. Rhinoviruses, parainfluenza and influenza viruses, human metapneumovirus, adenoviruses, and corona viruses are the main causes of URIs. The common lower respiratory tract infections (LRIs) in children are pneumonia and bronchiolitisIn April 2009, the public was notified about the outbreak of a new influenza virus in Mexico. During March and April of that year, almost 2000 cases had been registered, with initial reports indicating severe illness among young and healthy people as well as high mortality rates. [1,2] For instance, one report of patients that had been hospitalised with the virus observed that 65% had become critically ill and 41 % of these died.[1]

The influenza, which was popularly called "swine flu", was caused by an A (H1N1) virus that had not been known to cause infection in humans before. The virus was later officially termed A (H1N1) pdm09. The disease proved to be as contagious as seasonal flu and quickly spread through the Americas to Europe and Asia. On April 2009, the Centers for Disease Control and Prevention (CDC) identified two cases of human infection with influenza A (H1N1) characterized by a unique combination of gene segments that had not been identified among human influenza A virus. Additional cases were rapidly reported leading the WHO to declare a pandemic phase level, indicating widespread human infection.

Influenza Vaccination:

Most of the current seasonal influenza vaccines include 2 influenza A strains and 1 influenza B strain. Globally, trivalent inactivated vaccines (TIV) and live attenuated influenza vaccines (LAIV) are available.[1] However, in India, LAIV is not available and a monovalent vaccine containing single pandemic strain, A (H1N1) pdm09 is also available. All currently available trivalent vaccines now have the influenza strain that is antigenically similar to 2009 pandemic swine flu strain i.e. A(H1N1)pdm09. Hence, there is no need to go for separate 'swine flu'.

The antigenic composition of the influenza vaccines is revised twice annually and adjusted to the antigenic characteristics of circulating influenza viruses obtained within the WHO's GISRS to ensure optimal vaccine efficacy against prevailing strains in both the northern and southern hemispheres.[1]

I. Trivalent inactivated influenza vaccines (TIVs) : The trivalent influenza vaccines are produced from virus growth in embryonated hen's eggs and are of three types: whole virus, split product, subunit surface – antigen formulations [1]. Trivalent influenza vaccines are the only influenza vaccines licensed for vaccination of children <2 years of age, persons aged $\geqslant 50$ years, and for pregnant women. Current trivalent influenza vaccines are not licensed for children <6 months of age.[1]

II. Live attenuated influenza vaccine (LAIV) : Live attenuated influenza vaccine provides broader and higher levels of protection than trivalent inactivated vaccines in healthy children aged 2-5 years of age. Live attenuated vaccine is not recommended below 2 years of age, in high risk individuals and in pregnant women.

III. Adjuvanted trivalent influenza vaccines (aTIVs) : In order to enhance immunogenicity, some current formulations of trivalent vaccines include adjuvants such as oil-in-water adjuvants or virosomes.[2] Adjuvanted vaccine shows enhanced priming and boosting, as well as efficacy in infants, although need for two doses remains.[2]

IV. Quadrivalent influenza vaccines : The development of quadrivalent influenza vaccine formulation for seasonal influenza vaccine is of interest in providing comprehensive protection against influenza B viruses.

Dosage Schedule : Trivalent influenza vaccine is administered intramuscularly, injected into the deltoid muscle (for vaccinees aged >1 year) or the antero-lateral aspect of the thigh (for vaccinees aged 6–12 months). Children aged 6-35 months should receive a pediatric dose, and previously unvaccinated children aged <9 years should receive 2 injections administered at least 4 weeks apart. A single dose of the vaccine is appropriate for school children aged >9 years and healthy adults.[3]

Live attenuated vaccine is given as nasal spray, 1 dose only, but children aged 2-8 years who have not received seasonal influenza vaccine during the previous influenza season should receive 2 doses, at least 4 weeks apart. Annual vaccination (or re-vaccination, if the vaccine strains are identical) is recommended, particularly for high-risk groups.[4]

Efficacy : In general, HI antibody titre of 1:40 or greater have been shown to provide 50% efficacy of protection in healthy adults.[4] However, a cutoff of 1:110 for antibody titers may be preferable to predict the conventional 50% clinical protection rate in children, and a titer of 1:330 would predict an 80% protective level, which would seem to be more desirable from a public health perspective.[5,6]

The reported efficacy/effectiveness of influenza vaccines varies substantially with factors such as the case definition (e.g. laboratory-confirmed influenza disease or the less specific influenza-like illness), the 'match' between the vaccine strains and prevailing influenza strains, vaccine preparation, dose, prior antigenic experience, and age or underlying disease conditions of an individual.[6,7]

IAP has recommended seasonal influenza vaccine : (including the earlier monovalent A (H1N1) vaccine) only for the category of 'high-risk children'. This category contains the following :

Chronic cardiac, pulmonary (excluding asthma), hematologic and renal (including nephrotic syndrome) condition, chronic liver diseases, and diabetes mellitus.

Congenital or acquired immunodeficiency (including HIV infection)\

Children on long term salicylates therapy

Laboratory personnel and healthcare workers.[7]

Target group for Influenza vaccination : Influenza vaccination should aim primarily at protecting vulnerable high-risk groups against severe influenza-associated disease and death.

Prioritisation of Target groups :

1. Elderly individuals (>65 years) and nursing-home residents (the elderly or disabled).
2. Individuals with chronic medical conditions including individuals with HIV/AIDS, and pregnant women (especially to protect infants 0-6 months).[7,8]
3. **Other groups:** health care workers including professionals, individuals with asthma, and children from ages 6 months to 2 years.
4. Children aged 2-5 years and 6-18 years, and healthy young adults.

Ideal time for Influenza Vaccination : The best time for offering vaccine for individuals residing in southern states would be just before the onset of rainy season, i.e. before October while for rest of the country, it should be before June.[8]

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