Open Access Journal of Toxicology
ISSN 2474-7599

Juniper Publishers
key to the Researchers

Mini Review
Volume 2 Issue 4 - March 2018
DOI: 10.19080/OAJT.2018.02.555592

Open Acc J of Toxicol

Flu Viruses

Krishnasarma Pathy*

Head of QC/QA, IPL Research Centre, India

Submission: October 24, 2017; **Published:** March 07, 2018

***Corresponding author**: Krishnasarma Pathy, Head of QC/QA, IPL Research Centre, India, Tel: 9919188895, Email: drkrishnasarmapathy@yahoo.in

Abstract

Human H1N1 pandemic developed from the originally localized Mexican source early in the spring 2009. For the emergency created by the epidemic of influence of the pigs in Mexico it was correct not to create alarmism being victims of bad information. Cytokine storm should be mentioned as one of the key pathogenic events contributing to the overall mortality in substantial portion of patients. If active immunization is assumed to be preventive measure of proven efficacy, clinicians are still in doubt how to treat a complicated course of infection. The possibility that the virus arrives in other parts of the world is real as for all the types of influence virus. In order that a strain has a wide distribution, its antigenic characteristics must ensure that it escapes the neutralization of antibodies of the host and of the surrounding population. So the outbreaks will happen with those strains that have dominant antigens that fit the deficiency, or better, the absences of antibody in the population.

It seems, in conclusion that the flu virus shows ability and an aptitude for survival built on the possibility of emergence of new models that allow the virus being confused easily through populations still partly immune to previous antigenic forms. According to this view, the changes in the influenza A can be designed in single meaning, in the context of a principle and of an evolutionary progress, from Burnet said immunological drift or steering immunology. The antiviral drugs (inhibitors of the neuraminidases, receptor of the virus surface) should be assumed within 48 hours by the appearance of the influence symptoms and for the subjects that have had a close contact with people infected by the flu virus. The vaccination against the influence is the most effective method to prevent the illness.

1. Neuraminidases inhibitors intake, which prevent adhering of viral capsid to the eukaryotic (e.g. mammal or human) cell membrane and "decoating" of RNA into cytosol. Different pharmaceutical markets, with different rate of success, had experiences with oseltamivir, zanamivir and peramivir, applied through several dosing regimens and routes of administration and consequently choice of drug forms used,

2. Bacterial super infections antibiotics treatment, most commonly situated in lower respiratory tract, according to available evidence-based guidelines on hospital acquired pneumonia management,

3. Low dose cortisol analogues are proper only with developed respiratory distress syndrome and together with neuraminidases inhibitor. High doses are not recommended even as adjuvant therapy and have neither proven efficacy nor safety in this indication.

4. From the moment that we find the isolation of a new flu virus, we must wait for the preparation of a new specific vaccine that will be ready for the next influence season in autumn.

Keywords: Virus; Influenza; Flu; Avian; Swine

Mini Review

The history of flu viruses teaches that the influence has origin from animal's birds, generically aquatic, and then transferred to man through the leap into pigs. The promiscuity of the herds, as it is in use in Asia, determines this transition and then the spread. The Spanish influence (1918, H1N1), the one from Asia (1957, H2N2), that of Hong Kong (1968, H3N2) and soon have had this origin [1].

The strains common in some years may have also relations with those of other years. The person's mostly old people have antibodies directed towards the antigens more important of the strains with which they were in contact. With the progress of the age it is a broader spectrum immunity that is reflected in antibodies polyvalent made through the contact with many antigens primary and secondary present in strains those they meet during the following years. But each contact following with a flu virus of type A involves not only specific antibodies, but also an increase in those directed towards the strain responsible for the first flu infection of the subject (phenomenon of Davenport or doctrine of original sin). In this way, the immunization to a particular strain, spread in a certain period, involves progressively increasing difficulty in its further distribution and creates the selective advantage, for some variant of the virus, to multiply and spread.

Dealing with suspected or confirmed H1N1 infection cases at different levels of care

We can easily notice that there are developed and from WHO and CDC recommended procedures in handling the diseased. In that sense from historical military sanitary doctrine it is well known that epidemiological surveillance and proper organisation on the field are much more important for raising survival rates than experienced physicians or quality of equipment available. Therefore, in accordance with this we present an algorithm on handling infected persons in primary care setting. Recommended procedure differs significantly at secondary and tertiary levels of care and assumes selection and follows up of patients in line with natural course of disease and response to treatment. In order to more easily find the assistance on clinical decision making we gave the next algorithm No 2. The new strains will be in conditions of an increase in visitors, regardless of whether they have or not an immunologic experience with the previous strains. As a result of that, shortly after the appearance of a new type, the old forms will disappear and the new family will become dominant for a period which in general covers 10-20 years, in which there is, for the emergence of minor antigenic variation, the subdivision in various subtypes. The outcrops of a new epidemic strain may, therefore, be regarded as a process of development interesting the characteristics of the strain and the susceptibility of the population. In order that a strain has a wide distribution, its antigenic characteristics must ensure that it escapes the neutralization of antibodies of the host and of the surrounding population. So the outbreaks will happen with those strains that have dominant antigens that fit the deficiency, or better, the absences of antibody in the population. It seems, in conclusion, that the flu virus shows an ability and an aptitude for survival built on the possibility of emergence of new models that allow the virus being confused easily through populations still partly immune to previous antigenic forms (Figure 1 & Table 1).

Table 1: Dosing Regimen of Neuraminidases Inhibitors, Individualized in Accordance with Age and Body Weight.

Five-day dosing regimen		
OSELTAMIVIR		
Body Weight	Child ≥ 12 months	Adults
≤ 15kg	30mg per each 12 hours	75mg per each 12 hours
15-23kg	45mg per each 12 hours	
23-40kg	60mg per each 12 hours	
≥ 40kg	75mg per each 12 hours	
Child from 0 to 12 months age		
	3mg/kg per each 12 hours	
ZANAMIVIR		
	Children older than seven	Adults
	10mg per each 12 hours (twice inhaled by 5mg)	10mg per each 12 hours (twice inhaled by 5mg)
PERAMIVIR (FDA has approved intravenous drug in highly restricted indications because safety and efficacy are not confirmed with significant level of evidence)		
*vitally endangered adults are considered suitable for peramivir application or pediatric patients with unsatisfactory response to oral/inhaled neuraminidases inhibitors treatment or expected bioavailability of drug falls within unacceptable levels due to clinical reasons or pure compliance		

How to cite this article: Krishnasarma Pathy. Flu Viruses. Open Acc J of Toxicol. 2018;2(4): 555592. DOI: 10.19080/OAJT.2018.02.555592

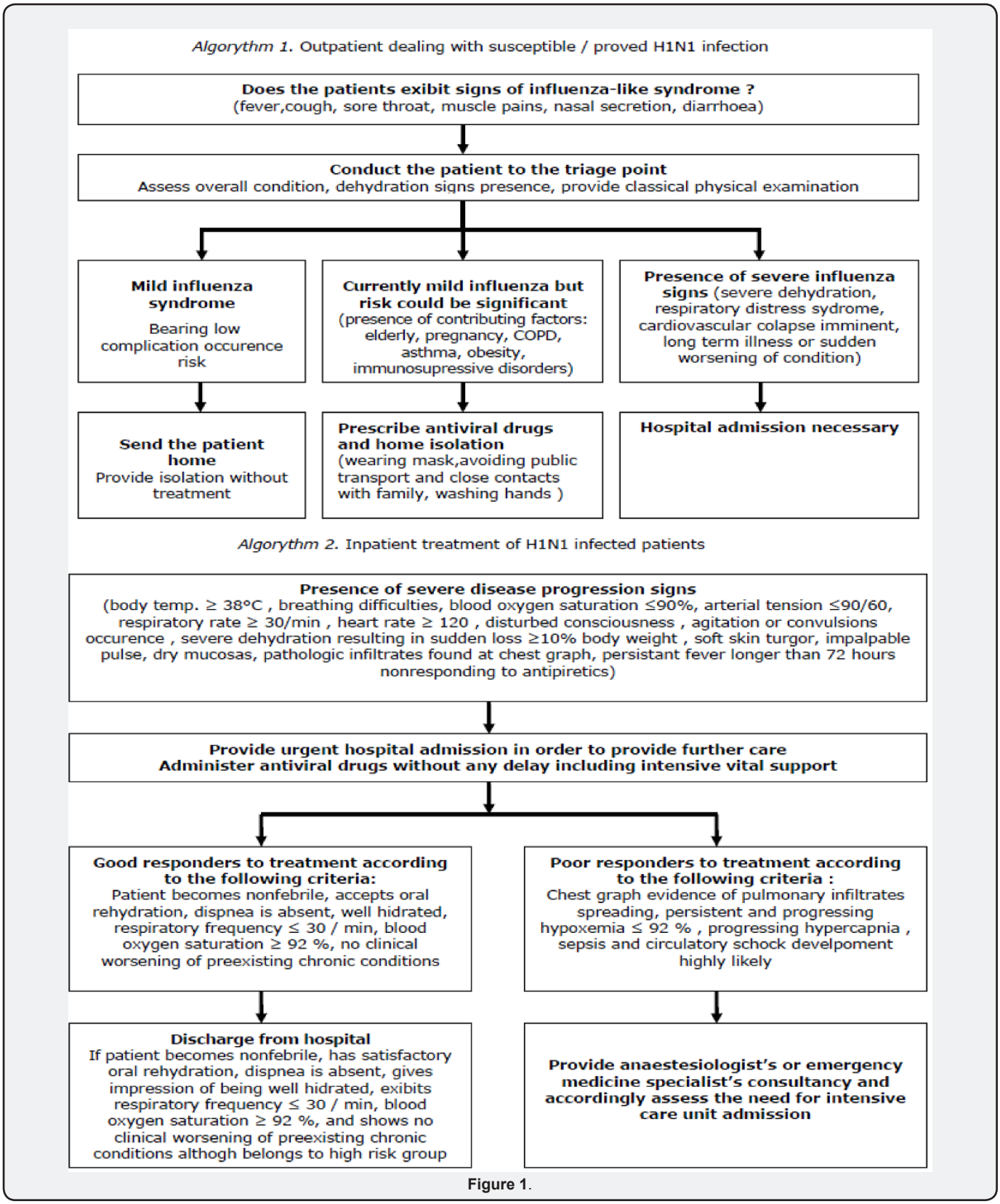

Figure 1.

According to this view, the changes in the influenza A can be designed in single meaning, in the context of a principle and of an evolutionary progress, from Burnet said immunological drift or steering immunology. Very important to remember that it was demonstrated the presence of antibodies to the more recent strains of 1957 Asian flu (A2) in older segment of that population: in Asian influence there were obviously strains with dominant characters, other than those that had characterized the previous years, more or less, but similar to those of the strains widespread much before (1889-90pandemic).

How to cite this article: Krishnasarma Pathy. Flu Viruses. Open Acc J of Toxicol. 2018;2(4): 555592. DOI: 10.19080/OAJT.2018.02.555592

For the emergency created by epidemic of avian flu in Asia it was right not to create panic as victims of bad information [2]. The possibility that the avian virus entries in other parts of the world it was like the rest for all types of flu viruses. It is clear that the dead animal is harmless, and therefore there are other veterinary and agricultural interests there is a potential risk of genetic recombination with human flu viruses that might hesitate to a viral variant capable of a transmission from human to human.

Some important medicinal natural herbs or plants used for the treatment of swine flu Basil: *Ocimum sanctum* and Ocimum basilicum also known as Tulsi (Hindi) and Holy Basil (English) is an aromatic plant of the family Lamiaceae. The plant, as a whole, is a treasure house of potent compounds with its leaves, seeds, and roots, as well as flower being medicinally important and is considered divine by the Hindus. *Ocimum sanctum* and Ocimum basilicum are great Ayurvedic treatment option for swine flu. Ayurvedic practitioners claim that basil not only keeps the nasty swine flu virus at bay, but it also assists in the fast recovery of an affected person. They claim that basil improves the body's overall defense mechanism, thereby increasing its ability to fight viral diseases. It is also believed to strengthen the immune system of the afflicted person. For the control and prevention of many diseases, Ocimum extracts are used in ayurvedic remedies for common colds, headaches, stomach disorders, inflammation, heart disease, various forms of poisoning, and malaria. For the control and prevention of swine flu, basil must be consumed in the fresh form. The paste or juice of a minimum of 25 leaves (medium size) should be consumed twice a day. Moreover, it should be had on an empty stomach. *Ocimum sanctum* is considered to be an adaptogen par excellence [3,4]. It harmonizes different processes in the body and is helpful in acclimatizing to stress. The main chemical constituents of *Ocimum sanctum* are oleanolic acid, ursolic acid, rosmarinic acid, eugenol, carvacrol, linalool, and β-caryophyllene [5]. Ocimim sanctum is reported to be an effective treatment for diabetes and high cholesterol [6] O.sanctum also shows promise for protection against radiation damage [7,8]. *Ocimum sanctum* leaves contain highest percentage of essential oils, infusion of which is given in malaria. Juice of the leaves is taken internally and is very effective in skin diseases such as itches fungal infections. Fresh leaves also cure chronic fever and when mixed with honey and ginger juice, it is useful in cough and bronchitis [9]. The antimicrobial properties of O. sanctum make it useful for the prevention of novel H1N1 flu. Basil is safe, with no side effects and is great to prevent swine flu from spreading like wildfire.

In the course of epidemic of avian influenza that struck in 2005 10 Asian countries (China, Pakistan, Thailand, Cambodia, Indonesia, North Korea, South Korea, Taiwan, Laos, Vietnam) with 80 million chickens died or sacrificed and 42 fatal human cases it was identified H5N1 as an etiologic agent, the same as the one that in 1997 had caused an epidemic outbreak in Hong Kong with 18 human subjects infected and 6 dead and with the sacrifice of 1.5 million chickens [10].

The Avian Influenza recent outbreaks with involvement of viral strains as H9N2 in 1999, infected two children and other individuals, and in 2003, infected a boy in Hong Kong, while H5N1 hit three subjects of a family killing two in 2003. At the same time in the Netherlands an epidemic from avian influenza viruses H7N7 hit 83 people and led to death a veterinarian.

In 2005 in the USA outbreaks of avian influenza have been identified in Texas and in Delaware (virus H7N2), and in the last State together with territories of Maryland and of Virginia there are working 14,000 people and 1,900 families that produce the 8% of the meat of American poultry, with a budget of one and a half billion dollars. In 2003 the American export in Europe has reached the share of eight million and eight hundred thousand eggs and 452 thousand chicks, respectively for 20 million and 3 million of Euro.

For the emergency created by the epidemic of "influence of the pigs" in Mexico it is correct not to create alarmism being victims of bad information [11]. The possibility that the virus arrives in other parts of the world is real as for all the types of influence virus [12]. For the SARS a direct contact was necessary, in practical terms the so-called droplets of Pflugge, for this swine influence it is different, in fact, it also spreads through the air to distance. And a potential risk exists of a panic syndrome that it often happens through bad information or a scarce knowledge of the phenomenon. Then no alarmism because the number of the victims is decidedly inferior to other pandemics [13].

Few years ago there were announced in Naples of an outbreak of disease of Newcastle in a group of parrots coming from Pakistan. The disease of Newcastle represents a useful paradigm of the influence infection in man. Fortunately there is not a reported human pathology to this virus, for which the discovery of the outbreak of disease of Newcastle in Naples did not give worries of any sort for the health of the Neapolitans. Finally the risks of the disease of Newcastle are more tied to the breeding of home volatile that, not immune to this virus, can be exposed to the epidemic [14].

The vaccination against the influence is the most effective method to prevent the illness. From the moment that we find the isolation of a new flu virus, we must wait for the preparation of a new specific vaccine that will be ready for the next influence season in autumn [15].

The antiviral drugs (inhibitors of the neuraminidases, receptor of the virus surface) should be assumed within 48 hours by the appearance of the influence symptoms and the subjects that have had a close contact with people infected by the flu virus [16,17].

Conclusion

The history of flu viruses teaches that influence originates from birds, usually aquatic, and then it is transferred to man through the leap into pigs. The promiscuity of the herds facilitates this transition and then the spread. Three pandemics caused by

How to cite this article: Krishnasarma Pathy. Flu Viruses. Open Acc J of Toxicol. 2018;2(4): 555592. DOI: 10.19080/OAJT.2018.02.555592

influenza A viruses, which occurred in the 20th century, have all had this origin: the 'Spanish flu' (1918, H1N1), the 'Asian flu' (1957, H2N2) and the 'Hong Kong flu' (1968, H3N2). The 2009 H1N1 influenza virus acted during the winter in Australia and New Zealand yielding a pattern effect for the treatment of patients during the winter in the Northern Hemisphere. The performance of rapid diagnostic test for the detection of novel influenza A (H1N1) virus was evaluated by the Centres for Disease Control and Prevention.

The findings of severe respiratory disease concurrent with the circulation of H1N1 influenza was proved by the aforementioned test. Even the potential impact of pandemic influenza during the Hajj pilgrimage was taken in account to reduce the substantial effect on the crowd to spread the infection.

References

1. Zimmer SM, Burke DS (2009) Historical perspective--Emergence of influenza A (H1N1) viruses. N Engl J Med 361(3): 279-285.
2. Enserink M, Cohen J (2009) Virus of the year. The novel H1N1 influenza. Science 326(5960): 1607.
3. Esposito C, Antimo Di Spirito, Nunzia Cuomo, Giuseppe Di Nicuolo, Giovanni Flaminio, et al. (2012) Tracking the 2009 H1N1 influenza virus in the Italian region Campania. Journal of Cellular Physiology 227(7): 2813-2817.
4. Swine. Custom Vaccines. Novartis.
5. Swine Flu: The predictable pandemic of 2009.
6. Anna Rovid Spickler (2016) Influenza Factsheet. Center for Food Security and Public Health, Iowa State University p. 1-68.
7. Ramirez A, Capuano AW, Wellman DA, Lesher KA, Setterquist SF et al. (2006) Preventing Zoonotic Influenza Virus Infection. Emerging Infect Dis 12(6): 996-1000.
8. (2009) Q & A: Key Facts About Swine Influenza (Swine Flu) – Diagnosis. Centers for Disease Control and Prevention.
9. (2009) Chlorine Bleach: Helping to Manage the Flu Risk". Water Quality & Health Council.
10. Tarro G, Esposito C (2011) Emerging viral agents at risk in global health approaches to early diagnosis and prompt therapy. International Conference on Bioinformatics and Computational Biology (BIOCOM'11). CS REA Press, Las Vegas, Nevada, USA.
11. Chowell G, Stefano M Bertozzi, M Arantxa Colchero, M Arantxa Colchero, Celia Alpuche Aranda et al. (2009) Severe respiratory disease concurrent with the circulation of H1N1 influenza. N Engl J Med 361(7): 674-679.
12. Dawood FS, Jain S, Finelli L, Shaw MW, Lindstrom S, et al. (2009) Emergence of a novel swine-origin influenza A (H1N1) virus in humans. N Engl J Med 360(25): 2605-2615.
13. Lister P, Fiona Reynolds, Roger Parslow, Alex Chan, Mehrengise Cooper, et al. (2009) Swine-origin influenza virus H1N1, seasonal influenza virus, and critical illness in children. Lancet 374: 605-607.
14. Morens DM, Jeffery K Taubenberger, Anthony S Fauci (2009) The persistent legacy of the 1918 influenza virus. N Engl J Med 361(3): 225-229.
15. Self-protection measures. LHC.
16. (2009) WHO. Clinical management of human infection with pandemic (H1N1) 2009: revised guidance
17. (2009) WHO. Clinical management of human infection with pandemic (H1N1) 2009 virus infection, interim Guidance from Expert Consultation.

DOI: 10.19080/OAJT.2018.02.555592