

Original Article

Islamic Prevention of Avian Influenza

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Abstract:

Pandemic influenza occurs from time to time due to drastic changes in its antigenic properties. Avian (H5N1) influenza, which is equally lethal to birds and man, retains the potential to cause a major global outbreak in humans. Comparable major pandemics occurred in the past; the most famous of those is plague. The Prophet Muhammad ﷺ has clearly outlined how to contain epidemics by discouraging migration to and from the affected area. The Islamic way of “community quarantining” by restricting human mobility can play an important role in controlling pandemic influenza. Moreover, basic sanitation taught by Islam can help to prevent the disease from occurring. The hygienic principles of Islam are simple and easy to follow. People of all faith can benefit.

Key words: Influenza, avian influenza, Islam, Muslims, and pandemic.

Introduction

Pandemic influenza has been visiting mankind from times immemorial. The name “influenza” may have been derived from an Italian word “influenza di freddo” meaning “influence of cold” in the middle of 18th century. The disease, however, must have occurred in the past with different names, notably “catarrhal fever” or “purulent bronchitis.”¹⁻³

From 1510 until the end of 19th century, there were at least 22 major epidemics in the United Kingdom alone.³ The last century witnessed three major pandemics in the years 1918, 1957, and 1968. The first outbreak, known as “Spanish influenza,” was the most perilous and killed more than 20 million people all over the globe, four times the number of casualties in World War I.¹

Influenza viruses can be divided into three major types: A, B, and C.⁴ Influenza A has various subtypes identified by surface glycoproteins known as hemagglutinin(H) and neuraminidase(N), after which they are usually named. So far, 16 “Hs” and 9 “Ns” have been discovered. The most well-known bird flu virus has H5 and N1 as surface markers and, therefore, is known as the H5N1 virus.⁵

Due to the possession of a highly fragile genetic make up, the influenza A virus goes through minor

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changes almost annually, thus necessitating renewal of yearly vaccinations. At times it undergoes radical changes in one or both of the surface proteins, which flu-scientists dub as “shifts.”⁶ Hemagglutinin always changes in shifts, but neuraminidase on occasion remains unaltered.⁷

A shift is usually followed by a major epidemic. The last three pandemics were caused by H1N1, H2N2, and H3N2 viruses, respectively; the serial changes are obvious in their hemagglutinins: (H1→H2→H3).¹

Influenza A viruses can also cause epidemics in birds and other animals, notably pigs and horses.¹ Birds can be affected by any combination of H and N, but only a handful of selected combinations affect humans and other animals.¹ H5N1 is a highly pathogenic avian influenza virus, which causes disease in chickens, turkeys, geese, pheasants, partridges, quails, and many other wild birds.⁸ The fatal effects of the virus and the culling of poultry have resulted in the deaths of millions of birds in East Asia, amounting to an estimated loss of \$10-15 billion dollars just over the last decade.⁸

The avian viruses (e.g. H5N1, H7N7) enter the respiratory and alimentary tracts of birds via a receptor called alpha 2,3 galactosidase, while the human viruses (e.g. H1N1, H3N2) enter the human respiratory tracts through the 2,6 galactosidase receptor.⁹ Due to differences in their receptors, avian viruses were believed not to infect humans, but the appearance of H5N1 in humans in Hong Kong in 1997 has challenged the long-held tenets of influenza epidemiology.¹⁰ It has been discovered recently that, like birds, the human respiratory tract also contains a small number of alpha 2,3 galactosidase receptors, which explains the ability of the virus to cross the species barrier.¹¹ Pigs have both types of receptors in abundance and hence can be infected by both avian and human viruses and act as a “mixing vessel”, giving birth to a new strain capable of transmitting among the human population.¹¹

H5N1 influenza in humans is a shift (a radical change in hemagglutinin) and has the potential to cause a pandemic even though presently it appears to have no transmission or very slow transmission among humans. It may undergo the necessary adaptation processes to gain the quality to spread across the population in the near future.^{8,11}

H5N1 was unknown to cause disease in humans before 1997,⁹ but a disease with a similar mode of transmission, plague, caused serious pandemics in the past.¹² Despite having etiological differences, bird-flu can be compared with plague because of its zoonotic origin, high mortality, short incubation period, and pandemic ability.

Epidemics are mentioned in the Qur’an¹³ and Bible.¹⁴ The Prophet Muhammad ﷺ answered several queries of his followers on epidemics and indicated how epidemics can be contained. In this paper we explain how these recommendations can be applied to control avian influenza. We have also analyzed hygienic guidelines in Islam and their uses to prevent avian influenza.

Community Quarantining

Western historians claim that quarantining, the segregation of individuals with suspected contagious disease, dates back to 1377 when the rector of Ragusa (aka Dubrovnik), a seaport in Croatia on the Adriatic Sea, used to detain arriving travelers for 30 or 40 days.¹⁴ However, the fact that Prophet Mohammed ﷺ had already outlined a method of community quarantining over 700 years prior to that has been largely overlooked.¹⁵ This method of segregation differs from conventional methods of quarantining in that the latter involves seclusion of suspected individuals for a period of observation at the entry points into a defined geographic area, whereas the former method involves containment of the whole population within an affected locality. He ﷺ said:

الطاعون رجس، أرسل على طائفة من بني إسرائيل،
أو: على من كان قبلكم، فإذا سمعتم به بأرض فلا
تقدموا عليه، وإذا وقع بأرض وأنتم بها فلا تخرجوا فرارا
منه

Epidemic disease is a form of torture sent on a group of the Israelites (or on some people before you). So if you hear of its spread in a land, do not approach it, and, if an epidemic should appear in a land where you are present, then don’t leave that land in order to run away from [the epidemic].¹⁶

In this hadith, the Prophet ﷺ has advised his followers to avoid exposure to epidemics and prevent their spread. Both of these can be applied to contain avian influenza.

Avoidance of Exposure

Complete avoidance of exposure can only be ensured by refraining from entering into the affected locality. Unnecessary travel to an affected area will only increase the risk of exposure. The flu virus is shed in huge amount in the feces, saliva, and nasal discharge of birds. One gram of chicken feces is believed to contain a viral load sufficient to infect 1-10 million birds.⁸ The virus is able to withstand drying and survive in environmental surfaces for up to two weeks.¹⁷ Humans can be infected through inhalation of droplets and droplet nuclei and by direct and indirect (fomites) contact.⁸ Unlike seasonal influenza, avian influenza is not believed to transmit from human to human, so simply isolating infected individuals will not sufficiently protect others from contracting the disease. Avoidance of traveling to the affected environment is an important step to ensure optimum protection of an uninfected person.

Prevention of Spread

Prevention of spread to an unaffected community can be halted by limiting migration of a population from affected areas to healthy areas. It is likely that, sooner or later, bird-flu will acquire the ability to transmit among humans.⁷ In that case, people from an affected locality could carry the contagion to the unaffected area and thus facilitate its spread in a wider scale. Restriction of movement of only ailing people from an affected area will not sufficiently safeguard the others. Restriction of movement of both the ill and the apparently healthy, who may be silently incubating the disease, should be encouraged to ensure full protection.

In a major outbreak, people tend to panic and run away from the dangerous area to a seemingly safer area. Application of legislative force can make the situation even worse because of the sensitive nature of the issue; hence voluntary acceptance should be encouraged. The Prophet ﷺ gave glad tidings to those who adhere to this principle and patiently remain in the affected area, saying they would be given the reward of martyrs:

كان عذاباً يبعثه الله على من يشاء، فجعله الله رحمة للمؤمنين، ما من عبد يكون في بلد يكون فيه، ويمكث فيه لا يخرج من البلد، صابراً محتسباً، يعلم أنه لا يصيبه إلا ما كتب الله له، إلا كان له مثل أجر شهيد

[Plague] is a punishment sent by Allah on whom he wishes, and Allah made it a source of mercy for the believers, for if one in the time of an epidemic stays in his country patiently hoping for Allah's reward and believing that nothing will befall him except what Allah has written for him, he will receive the reward of a martyr.¹⁸

Here a question remains. Are not the persons who neither incubate nor suffer the disease putting themselves at risk by not migrating to a safer destination?

In a setting of pandemic outburst there is no assurance that they have been spared, and there is no guarantee that they will not be infected if they move to a seemingly safer place. These people always carry the risk of infecting others, so it is better for them to isolate themselves in their own locality during the period of pandemic. At the same time, however, every caution needs to be exercised to avoid direct contact with an ill person.^a

Plague was considered by the Prophet ﷺ as a means of punishment sent on a sinful community. We must not try to understand a causal relationship between sin and plague. The purpose of the Prophet's ﷺ saying is to warn sinners from sinful acts, not to prove an etiological association between plague and sin. Similar narrations are available in other holy books, including the Bible,¹⁴ where prophets have described other nations that perished due to their sins. The duty of the Prophet ﷺ is to bring the wicked people back to good deeds by warning them of impending perils — such as plague, leprosy, and earthquakes — to stop them from sinning.

Apart from this public health measure, Islamic

^aEditor's note: For additional information about quarantine practices in the modern era, see Al-Ateeg FA, Saudi Med J, 2004;25:1337-46.

sanitation will add further to the prevention of avian influenza.

Hand Hygiene

The avian influenza virus can be self-inoculated onto the upper respiratory tract or conjunctivae from contaminated hands.⁸ Hands can be contaminated by contact with an ill or dead bird, manure, cages, egg trays, and trucks or other such vehicles used in carrying birds or poultry products.⁸ A good hand washing can do more to prevent the spread of flu than anything else.¹⁹

Praying five times daily is one of the most important tenets of Islam. Muslims must perform methodical ablutions before praying.²⁰ Ablutions involve washing of the hands, face, ears, nose, mouth, and feet, which may efficiently remove contamination from those areas.

The Prophet Mohammed ﷺ always urged Muslims to wash hands frequently and before and after meals.²¹ Hand washing is also enjoined after clearly delineated tasks: visiting the lavatory; touching a pig or dog, a cadaver, or one's shoes; and after handling anything soiled or in some way suspect.²² Hence, from the dawn of Islam, strict observation of hand hygiene has been advocated for all Muslims.

Avoiding Dead Birds and Pigs

Islam prohibits consuming animals and birds found dead.²³ A bird dying from an unknown reason could carry the deadly bird-flu virus. Though there are disputes among experts as to whether eating infected poultry can spread the disease, there is no doubt that handling infected poultry products may spread the disease.²⁴ Avoiding birds that have been found dead can prevent contracting bird-flu.

It is also important to note that drinking blood is forbidden (*ḥarām*) in Islam. Colin Blakemore, chief executive of the United Kingdom Medical Research Council says the only food risk of transmission of bird-flu he sees is from "drinking swan's blood."²⁴ Islamic prohibition on this matter eliminates food-borne transmission of avian influenza.

Further, Islam prohibits eating pigs.²³ Most jurists also prohibit pig farming and trade. Hence, a devoted Muslim is not expected to come in contact with pig farms. During the Spanish influenza outbreak, pigs were thought to play a pivotal role in the emergence

of the deadly virus.²³ Scientists discourage backyard pig farms close to poultry, as practiced in many East Asian communities.²⁵

Smoking

Smoking has very deleterious health effects, including a range of cancers. There are two schools of thought among Muslim jurists on smoking. Some say it is forbidden (*ḥarām*), and others say it is discouraged (*makrūh*). Regardless of the position of jurists, smoking is a bad habit, and a good Muslim is not expected to smoke. Smoking causes damage to the respiratory epithelium as well as decreases cellular and humoral immunity, and thus increases the risk of influenza infection.²⁶ Smokers with influenza have a protracted cough, wheeze, breathlessness, and have a longer duration of illness than nonsmokers with influenza.²⁷

Respiratory Etiquette

Coughing and sneezing may allow the spread of the influenza viruses via droplets that may travel up to 6 feet away. Covering the mouth during coughing and sneezing is part of observing respiratory etiquette. Yawning may allow introduction of the virus forcefully into the lungs, and covering the mouth during yawning is a recommended practice in Islam, especially during community gatherings such as prayer congregations, where the spread of influenza is very likely. The son of Abū Sa`īd al-Khudrī reported on the authority of his father that Allah's Messenger ﷺ said:

إذا تثاوب أحدكم، فليمسك بيده على فيه. فإن
الشيطان يدخل

When one of you yawns, he should place his hand over his mouth, since it is Satan who enters therein.²⁸

Conclusion

Avian influenza is emerging as a potential threat to mankind. A high case-fatality rate, lack of a fully effective vaccine, and soaring drug resistance are its major challenges. The Islamic way of preventing influenza can be complementary to other national

and international pandemic preparedness strategies. Islamic preventive and sanitary measures are simple, easy to follow, and do not contradict modern hygienic principles. Muslims and non-Muslims alike will benefit.

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