

H5N1 (Avian Influenza) Virus Case In 2014 Central Java Wonogiri District, What Is A Re-Emerging Disease?

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ABSTRACT

According to WHO Avian influenza is a respiratory tract disease caused by the influenza A virus that is zoonotic. Disease is a problem because it causes many poultry and human victims. The first case report that infected humans occurred in Hong Kong in 1997 which then spread to China (throughout Asia) to Europe and Africa. Globally there are 15 countries that report cases of avian influenza (H5N1) in humans, 4 of which are in the Southeast Asia region, namely Bangladesh, Myanmar, Indonesia and Thailand. In Indonesia a case report of a suspected avian influenza occurred in a man in Wonogiri District, Central Java. This article aimed to show an overview of H5N1 Avian influenza cases in Indonesia. Avian influenza cases were found based on epidemiological history, clinical symptoms and contact history ending in death on behalf of RNA (Men, Age 2 years) with the results of examination of samples examined and found to be Positive H5N1 on April 25, 2014. Risk factors were found namely the death of poultry on March 15-26, 2014 as many as 300 birds in RT 05 RW 01 in Gentan Village and March 26 till April 20, 2014 there were 69 individuals in RT 01 RW 03 Dusun Kopen, Desa Pule, Jatisrono, Wonogiri regency.

Keywords: H5N1 virus, poultry, Jatisrono Wonogiri Pule village.

INTRODUCTION

In Indonesia the first case of avian influenza was reported in July 2005 in Tangerang. ^[1] In Indonesia, poultry traded in the market comes from various categories of poultry producers, including from integrated farming industry, to free-range

chicken farms. Transmission of avian influenza viruses from poultry to poultry can occur if birds are infected with contact with other birds or to poultry handlers. ^[2] Until now there has been no information on data of poultry handlers infected with avian influenza nor has there been any data on handlers who have been infected but do not provide symptoms (asymptomatic / mild cases). People at high risk of contracting avian influenza are farm workers, poultry sellers and handlers and sellers of raw products. ^[3]

According to WHO Avian influenza is a respiratory tract disease caused by viruses and is zoonotic. Avian influenza has become a widespread concern for the community because it has resulted in many victims both poultry and humans. Reporting of the first case that infected humans occurred in Hong Kong in 1997, which then spread to China (throughout Asia) to Europe and Africa. Globally there are around 15 countries that report cases of avian influenza (H5N1) in humans, of which are in the Southeast Asia region, namely Bangladesh, Myanmar, Indonesia and Thailand. ^[4]

Positive avian influenza was found from the results of the official World Health Organization (WHO) report on the number of cases of avian influenza in humans in the Southeast Asia region reported since early 2004 to December 31, 2013, totalling 228 cases with 181 deaths or Case Fatality Rate (CFR) of 79, 38%. Especially in 2013 there were 4 cases with 4 avian influenza deaths in humans reported to WHO by the countries of Bangladesh and Indonesia. ^[5]

Avian influenza first entered the ASEAN region in 2003 through the country of Vietnam, with the stated 3 people who suffered from the disease and all died. In 2004 the number of cases increased to 46 with 32 deaths (CFR = 69.56%).^[2] In addition, the country of Thailand has also been infected with the H5N1 virus in 2004.^[6]

In 1968-1969 there was another pandemic in Hong Kong. In Europe (Netherland) Avian influenza outbreaks were caused by serotypes (H7N7) in 2003. In 2004 Avian influenza A (H5N1) outbreaks occurred in several African countries, Europe, and Asia, such as in Vietnam, Hong Kong, Thailand, Indonesia, China, Turkey, Azerbaijan, and Egypt.^[7]

Until now there has been no transmission of cases of avian influenza between humans, but it needs to be watched out because in theory each virus makes it possible to mutate, the most worrying is if the avian influenza virus interacts with the human influenza virus. If that happens then it is likely that a more virulent new strain of virus will be formed.^[5] The virus is likely to inherit the nature of the human flu virus that is easily transmitted between humans and also inherits the properties of the deadly avian influenza virus.^[7] Environmental factors have a big influence on the distribution and endemicity of avian influenza. The condition of the dirty environment due to the limited understanding of the culture of clean and healthy living supports the spread of various types of animal diseases including avian influenza.^[8]

According to WHO delegation of tasks or task assignment is the term that is now used for processes where certain tasks should be performed by competent health personnel but transferred or carried out by other health personnel or cadres who are given training to carry out the delegated action or task. Delegation of tasks can make the use of existing human resources more efficient and facilitate obstacles in service delivery.

Epidemiology

Cases of influenza A (H5N1) or better known as Avian influenza in the world began to be found in humans in 2003. Since then cases of Avian Influenza have continued to be reported from more than 15 countries worldwide and as of October 2015 there were 844 cases. The highest peak of cases in the world occurred in 2006, where there were 115 cases¹. The number of these cases continued to decline, and in 2015 only 125 cases were found. In 2015 avian influenza cases occurred in 3 countries, namely Egypt 119 cases, Indonesia 2 cases, and China 4 cases. In Indonesia, the most cases occurred in 2006, namely 182 cases, although the cases of avian influenza have declined from year to year, the latest report in 2015 was 2 cases.^[9,10]

At the end of 2005 the number of people and countries infected with avian influenza continued to increase to 90 people with 38 deaths (CFR = 42.22%). Although the number of cases of avian influenza has continued to decline in the following years, this is not the case with the death rate. In 2009 there were 27 cases in 3 countries in ASEAN with 24 deaths (CFR = 88.89%). Then in 2010 there was a decrease in CFR to 58.82% (17 cases with 10 deaths), but again increased in 2011 with a CFR of 90% (20 cases with 18 deaths) and decreased in 2012 to 87.5% (16 cases with 14 deaths). Until the end of 2012, there were 6 countries in the ASEAN region that had been infected with avian influenza, namely Vietnam, Thailand, Indonesia, Laos, Myanmar and Cambodia.^[8]

Currently a new type of avian influenza virus (H7N9) is developing which infects more than 100 people and killed 22 of them, occurring in 7 provinces and cities in China. At present there is not enough evidence that the virus can spread easily between humans. This virus is more easily transmitted from birds to humans than the H5N1 (WHO) type. At present the H7N9 virus has not been found in Indonesia, but we need to be vigilant because when migration occurs large migrations occur through Indonesia. It is possible that the

new type of avian influenza virus is carried by birds passing through Indonesia.

Because of new viruses, many unknown factors, such as the source of viruses, virus mutations, pathogenicity, virulence, migration, clinical symptoms and viral epidemiological situations, so that the preventive and management measures are still doubtful in their effectiveness. This time we will discuss the previous type of avian influenza virus. Avian influenza or Avian Influenza (AI) was first reported in 1997. This virus infects 3-year-old boys in Hong Kong with complaints of fever, sore throat and cough. Within 2 weeks, the child experiences worsening and dies with the cause of death of viral pneumonia. Tracheal aspiration carried out by 3 laboratories found a new variant of the influenza A virus in humans, H5N1. In Southeast Asia, cases of influenza A (H5N1) in humans are found along with the increase in cases of H5N1 in birds.

Most cases were found in Vietnam and the first person died from Indonesia. The AI incident in Indonesia was first reported in July 2005, attacking an 8-year-old girl from Tangerang with complaints of fever, diarrhea, and coughing. the patient died 20 days after the onset of the disease. A

similar incident occurred in the younger brother (1 year) and his father (32 years). Both died 10 days after the onset of the disease with positive H5N1 serological results. The widespread spread of the H5N1 virus through livestock and birds as well as the increased risk of human transmission has occurred since the end of 2003. August 2007, WHO reported 622 of the world's population infected with the H5N1 virus. Some patients experience rapid deterioration in acute respiratory distress syndrome (ARDS) and multiorgan failure. Fatal cases reach 60%. R = 88.89%).

METHODOLOGY

This type of research is quantitative descriptive with the aim of obtaining an overview of the case of avian influenza (H5N1) in Indonesia with a sample of cases that are the object of research, namely in Wonogiri Regency. Several cases have occurred which began on April 7, 2014, April 20, 2014. Through this quantitative approach, secondary data analysis was also carried out on RSA Astrini Officer Monitoring Data. The literature review was then conducted to enrich and sharpen the occurrence of H5N1 cases.

RESULT

Table 1. Distribution of Suspected Avian Influenza Cases in Kopen RT 01 RW 03 Pule Village, Wonogiri Regency, Central Java Province from 7 to 20 April 2014

NO	LOCATION	POPULATION AT RISK	CASES	AR %	DIED	CFR %	TIME OF EVENTS	INFORMATION
1	Kopen Rt 01 Rw03 Pule Village, Jatisrono district, Wonogiri, Central Java	2 RukunTetangga, around 300 people (80 families)	1		1	100	20 April 2014	Suspect AI
	Jumlah		1		1	100		

Table 2. Avian Influenza Case Data (H5N1) that has happened in Wonogiri Regency

No.	Date	Event
1	March 15, 2014	There were around 100 sudden poultry deaths in RT 05 Gentan Hamlet, Pule Village, Kec. Jatisrono, Wonogiri Regency (a neighboring hamlet in the case). Until March 26, 2014, the total number of poultry deaths was around 300
2	March 26, 2014	Poultry deaths of around 5 birds in RT 1 DukuhKopen, Pule Village, Kec. Jatisrono, Wonogiri Regency. As of April 20, 2014, the total number of poultry deaths was 69 (including the deaths of 9 poultry at home in the case)
3	April 7, 2014	Suspect feels fever (information from the mother's case)
4	April 8, 2014	Treatment at Puskesmas Pule. Temperature of 38.5°C and dizziness. Antipyretics, antibiotics, antihistamines, and vitamins are given
5	April 11, 2014	Heat decreases, but in the afternoon, it returns to fever. He went to Amal Sehat Clinic, Kec. Logohimo, handled by Dr. Silvi. Piroxym Supp 80 mg, InfunalSyrp, Cefixime, Gastrucyd, Luminal, Faridexon, and Cetrol were given
6	April 13, 2014	Suspect was examined by a private practice doctor (Dr. Suryanto, SpA). Because the condition of the suspect still hasn't improved, so the doctor advised to be treated.

Table 2 to be continued...		
7	13 – 19 April	a. Date. 13/4 Clinically when it comes hot already 6 days, there are no symptoms of a cold, shortness of breath (-). Patients hospitalized at Astrini Children's Hospital, Wonogiri b. Lab results April 13, 2014 WBC (Lekosit) 7.5; Hct33.2, FLT 276; Widal (+). Diagnosis of typhoid fever; Antibiotic therapy (Cefriaxon) and antipyretics. c. 16/4 cough symptoms occur. Cough and Chloramphenicol drug therapy. d. On April 17, 2014, a rontgent photo was taken with the results of the right lung infiltrate with the conclusion of Pneumonia e. Lab Results 17 April 2014 Hb 8.3; 3000 leukocytes; Trombo 177000; Ht25. f. The recommendations for referrals were dated 18/4, but several hospitals in Surakarta City informed that Room Isolation was full. g. The 2nd Rontgent Photo was carried out on 19/4 with the results of the infiltrate spread to the left side of the lung. Suspected FB diagnosis.
8	April 19, 2014	Respiration distress. Suspect was referred to and accepted at the emergency room at Dr. Woewardi Hospital at 11.00 WIB with coughing, shortness of breath and vomiting. Received in isolation at 12.00 with a Suspected general condition: Heavy, Conscious apathy, adequate nutrition; Tension of 75/50 mmHg; Start 150 x / min; freq. 46x / min breath; Temperature 37.6; Breath Nose lobe (+); Hyperemic pharynx (+); Chest Wall Retraction (+); Auscultation of SD Vesicular (+); Additional sound (+). Suspect was declared dead at 04.00 WIB at Dr. Moewardi Hospital in Surakarta.
9	April 20, 2014	Suspect was declared dead at 04.00 WIB at Dr. Moewardi General Hospital Surakarta.

Table 3. Monitoring Data for Astrini Children's Hospital Officers, Wonogiri

No	Name	Age	Position	Contact with suspect	Current condition	Note
1	AS	31	GP	19 April 2014	Healthy	Blood serum
2	SS	33	Ners		Healthy	Blood serum
3	I	30	Lab assistant		Healthy	Blood serum
4	O	32	Ners		Healthy	Blood serum
5	BA	30	Driver		Healthy	Blood serum
6	ND	27	GP who visited room	17 April 2014	Since 26 April 2014 cough, fever, 37.8	Blood serum and Swab TSNS
7	S	60	Hospital Director	13 April 2014	Healthy	Blood serum
8	DS	26	Ners		Healthy	Blood serum
9	SR	42	Lab assistant		Healthy	Blood serum
10	MP	30	Ners		Healthy	Blood serum
11	AS	31	Security		Healthy	Blood serum
12	B	23	X Ray assistant		Healthy	Blood serum
13	Y	26	Ners		Since 18 April cough and fever	Blood serum and TSNS
14	YA	33	Ners in HCU (HighCare Unit)		Healthy	-
15	IH	29	Ners		Healthy	-
16	YK	-	Lab assistant		Healthy	-
17	F	-	Lab assistant		Healthy	-
18	IK	-	Nutritionist		Healthy	-
19	K	-	Nutritionist		Healthy	-
20	U	-	Nutritionist		Healthy	-
21	A	24	Ners		Healthy	-
22	D	30	Ners		Healthy	-
23	AL	25	GP		Healthy	-

DISCUSSION

People who live close to places that are at high risk of avian influenza, if there is an outbreak of avian influenza, they will still be at risk of getting a virus because the virus can spread through the environment / contamination of the virus, so that the virus can spread to the area where poultry handlers live possible transmission. According to regulations, the area was declared free of contracting avian influenza if there were no H5N1 viruses found in birds in the past 6 to 9 months. [8] One effort to prevent contracting avian influenza is not

to live with chickens / poultry because it is very high risk if the birds are exposed avian influenza. One method of transmission is through air contaminated with viruses originating from secretions / mucus of infected birds.

According study by Zu-Qun [9] numbers of children died in the H5N1 group 33,1%. The mean age of pediatric death was 6(0.9-15) years in the H5N1 group, which is significantly higher than that of those who survived 4(0.7-15) years, $p < 0.001$. The rate of poultry exposure was far high for the index fatalities with regard to both the

H5N1 virus (67.4%).^[9] The farm birds examined in the study were obtained from cases admitted to the Clinic of Avian and Rabbit Medicine Department, Faculty of Veterinary Medicine, Zagazig University. The ducks showed general signs of illness, such as loss of appetite and decreased feed and water consumption, and specific signs, such as nervous signs (twisting of the neck, trembling and torticollis), respiratory signs (rhinitis, nasal and ocular discharge) and greenish watery diarrhea. Pigeons showed nervous signs, including twisting of the neck, inability to fly, tremors, incoordination, circling in flight, flying backwards and torticollis. Respiratory signs in some cases and greenish diarrhea were also observed. None of the quails showed clinical signs except loss of appetite and low egg production.^[10]

According to the Health Research and Development Center Volume 22 Number 4, December Year 2012 PPL, what is meant by infected areas and threatened areas is the area that has found avian influenza A H5N1 virus in poultry, and threatened areas are areas that have not been proven to have H5N1 virus in poultry but has a risk of contracting because of the mobility of poultry or raw materials in the form of carcasses and other poultry products from the infected area.^[11]

People who live close to places that are at high risk of avian influenza, if there is an outbreak of avian influenza, they will still be at risk of getting a virus because the virus can spread through the environment / environment that the virus is exposed to, so that the virus can spread to the area where poultry handlers live, transmission is likely to occur. According to regulations, the area was declared free of contracting avian influenza if there were no H5N1 viruses found in birds in the past 6 to 9 months.^[12]

One effort to prevent contracting avian influenza is not to live with chickens / poultry because it is very high risk if the birds are exposed avian influenza. One method of transmission is through air contaminated with viruses originating from

secretions / mucus of infected birds. According to the DirjenPPL Decree, what is meant by infected areas and threatened areas is that areas that have found avian influenza A H5N1 viruses in poultry and threatened areas are areas that have not been proven to have H5N1 viruses in poultry but are at risk of contracting poultry or poultry raw materials carcasses and other poultry products from infected areas.^[13]

The geographic distribution of countries with human H5N1 infections has expanded, especially between 2003 and 2008, with variations in outcome, demography, seasonality and the clade or subclade of viruses across the region. The incidence of human infections increased dramatically in Egypt from November 2014 to April 2015, but remained at a low level in other regions, and the CFR in Egypt has not significantly changed.^[14]

The basic principles of prevention, control and eradication of avian influenza include eliminating the source of transmission of the virus by the destruction of a limited number of sick birds and healthy birds that have the potential to be infected in one cage. The method of transmission of avian influenza can be through direct contact from infected poultry and indirect contact including sparks of fluid or mucus from infected noses and eyes, exposure to vomit, sick pits / feces, through the air due to virus contamination, through shoes and clothing, through feed and equipment contaminated with viruses, through wind transmission which plays a role in transmitting the disease in one cage and spreading between cages.^[15]

According to WHO, all people who are in contact with infected animals and those who hold and carry sick animals should often wash their hands with soap and use disinfectants to clean their hands. Basically, people who work daily with poultry should wash their hands frequently with soap to avoid contracting diseases from poultry.

Not only that the study by Helmi et.al (2018) found that EBN extract proven

to inhibit H5N1 virus infection. This inhibitory activity was seen in the HI test and the viral neutralization test. Extract EBN could neutralized infection H5N1 virus in Vero cells until day 3 and decreased viral titer after treatment. Extract EBN could inhibit hemagglutination of H5N1 virus in chicken erythrocytes. [16]

CONCLUSION

Conclusion In this study found cases of Avian Flu based on epidemiological history, clinical symptoms and contact history ending in death on behalf of RNA (Men, Ages 2 years) with the results of examination of samples examined at the Balitbangkes Laboratory declared H5N1 Positive on April 25, 2014 Found risk factors, namely the death of poultry on March 15-26, 2014, as many as 300 in RT 05 RW 01 in the Gentan hamlet and March 26 to April 20, 2014 there were 69 individuals in RT 01 RW 03 Dusun Kopen, Desa Pule, Kec. Jatisrono, District of Wonogiri.

ACKNOWLEDGEMENT

The author would like to express his gratitude for the generous and generous assistance from all parties, namely the relevant District Health Office Officers, colleagues at the Biomedical Research and Development Center and Basic Health Technology laboratory who had assisted in the blood tests of the respondents. And also, to the Research and Development Center for Resources and Human Resources of the Ministry of Health Research and Development Agency which has provided an opportunity so that this article can be published.

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How to cite this article: Putranto RH, Ayu WGA, Syamsuar. H5N1 (avian influenza) virus case in 2014 central Java Wonogiri district, what is a re-emerging disease? *International Journal of Science & Healthcare Research*. 2019; 4(3): 144-150.
