The First Major Outbreak Of Leptospirosis In Sampang Madura Island, Indonesia

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Abstract

Leptospirosis is an acute infectious disease that can infect humans and animals (zoonoses) caused by Leptospira bacteria. Leptospirosis is a zoonotic disease that is spread most widely, including in Indonesia. In most of the provinces in Indonesia did not escape the presence of leptospirosis in the district including Sampang Madura island in East Java province. Based on the data from the East Java Provincial Health Office of leptospirosis outbreaks have occurred on April 27, 2013, the number of cases of 21 people. Number of patients with leptospirosis in Sampang district continues to increase with the case fatality rate (CFR = 9.8%). The purpose of this study was to describe the characteristics of patients with leptospirosis in Sampang district 2013. Penelitian quantitative cross-sectional design of the study was conducted on 55 samples of respondents were taken by total population. Data were collected through interviews using a structured questionnaire. The analytical method used is the description of univariate analysts. The results showed that patients with leptospirosis average age was 25.8 years, male sex (75.0%). Spread over 5 health centers and 15 rural areas/villages in Sampang district is Banyuanyar, Camplong, Kamoning, Robatal and Torjun. Based on Hospital Admission and Exit Hospital is in April and May 2013, whereas in the previous month from February to March 2013 183-140 mm, 63.4-80.5% moisture and temperature 29-30°C. It is the month of highest rainfall causing puddles. Besides the discovery of the bacteria leptospirosis in mice that are caught Rattus Rattus norvegicus tanezumi and research in the region.

Introduction

Leptospirosis is an acute infectious disease that can infect humans and animals caused by the bacterium Leptospira pathogens and classified as a zoonosis. The clinical symptoms of leptospirosis are similar to infectious diseases such as influenza, meningitis, hepatitis, dengue fever, dengue hemorrhagic fever and other viral fevers. So often go undiagnosed. Typical grievances that can be found, namely sudden onset of fever, weakness, nausea, vomiting, decreased appetite, the eyes felt sore and colored yellow. Leptospirosis is a zoonotic disease that is most widely spread in the world, including in Indonesia. Leptospirosis is a disease transmitted by animals to humans through the release of urine. Animals were instrumental in leptospirosis, namely domestic animals such as dogs, cats, goats, sheep, cattle and rodents, especially rats. Leptospires in animals living in ginja danurine. Transmission occurs directly from body fluids of infected animals leptospirobacteria. In sub-tropical countries leptospirobacteria are rarely found. While seasonal trends suitable for the development of
tropical countries leptospira because the air is warm, moist soil and alkaline pH. In tropical countries the incidence of leptospirosis is 100 times compared with the sub-tropical countries, with the risk of more severe. The incidence of leptospirosis in tropical countries 5-20/100,000 per year.

According to the International Leptospirosis Society stated that Indonesia as a country with a relatively high incidence of leptospirosis and is ranked third in the world with mortality. Leptospirosis mortality rate in Indonesia is high, reaching 2.5-16.45%. At the age of 50 years to reach 56% mortality, patients with leptospirosis are colored yellow lining of the eye (liver damage has occurred) had a higher mortality risk of up to 3-54%, depending on the organ system infected. Leptospirosis has spread to 33 provinces in Indonesia, because it is expected to do with mice as reservoirs and poor environmental conditions. In 2010 there were 8 provinces had reported suspected incidence of leptospirosis, including Special Province of Jakarta, West Java, Central Java, Yogyakarta, East Java, Bengkulu, Riau and South Sulawesi. In May of 2013 there has been an outbreak of leptospirosis in Sampang regency of East Java province, namely the discovery of the positive cases of leptospirosis by 65 people 8 of them died, so that the case fatality rate (CFR) = 12.30%. The biggest risk factor is exposure of the case due to the flood water contaminated rat urine. An increasing number of cases of leptospirosis epidemiology needs to be done to be used as consideration of making policy proposals related decline in leptospirosis cases in East Java regency of Sampang.

Method

The study was conducted in the province of East Java regency of Sampang with cross-sectional research design. The population was all patients with leptospirosis recorded in Sampang District totaling 89 people, selected samples with sampling techniques proportionate stratified random sampling as many as 53 people. This study uses primary data collected through interviews using a structured questionnaire that had been previously developed. Observed variables include age, gender, education, Works and Housing. Secondary data were obtained from district health offices Sampang, East Java Provincial Health Office and the Center for Environmental Health Techniques (BTKL) East Java. The data includes the proportion of cases of leptospirosis in the province of East Java regency of Sampang, types of mice caught in a mouse trap, the spread of leptospirosis. Collected data is then processed and analyzed using univariate to explain the characteristics of each of the variables studied.

Results

The average age of patients with leptospirosis was 25.8 years, the youngest is 4 years old and the oldest 64 years of age. About 40 (75.4%) of respondents male sex, or age of the labor force earning no 6 (%), does not suffer from leptospirosis (RDT) = 1. Characteristic variables examined in residence is the address or location of leptospirosis patients from patient neighborhoods, home construction, the presence of trash, gutters or gutter, the rats, the use of footwear. The categories used are the working area health centers/sub-district and district or village. Leptospirosis patients residing in 5 areas namely health center or health center districts Banyuanyar, Camplong, Kamoning, Robatal and Torjun, Covers 15 Village or the village. Most of the data for Hospital Admission (MRS) April (28.57%), the largest moon - Exit Hospital (KRS) April (28.57%), Diagnosis of leptospirosis time MRS is (71.42%), Diagnosis Time Out Hospital (KRS) leptospirosis (International Conference on Innovative Trends in Multidisciplinary Academic Research” (ITMAR-2014)
100%), Characteristics of the variables studied include the dwelling place of leptospirosis patients, according to the identity card (KTP), Categories used were sub-district, sub-district or area health centers covers Banyuanyar 55 (61%) Camplongsubdistrict 1 (0.1%) Sub Kamoning 30 (34%), Robatal 1 (0.12%) and Torjun 2 (0.2%). In view of the distribution of urban/rural Banyuanyar village districts in the region there are 7 villages namely leptospirosisnya patients; Aengsareh village, there was 1 patient (12:12%). Banyuanyar village there are 5 patients (5.6%), Village Dalpangen 11 patients (12.3%), 1 patient Maddah mountain village (1:12%), 1 patient Mandagin Village (12:12%), village Polagan 4 patients (4:49%), Central Rong village 32 patients (36%). Village district area there is one village that CamplongCamplong with leptospirosis patients senyak 1 patient (12:12%). Villages that are in the 5 districts Kamoning there is no village Dalpenagleptospirosisnya patients with leptospirosis or 25 patients (28%), with 1 penfderitaPangelen Village (12:12%), Village P. Mandangin 1 patient (12:12%), Central Rong Rural 1 patients (12:12%) and 2 patients with Tanggumong village (2:24%). SubdistrictRobatalPolagan with 1 village, the village, there was 1 patient (12:12%) and the District Torjun with 2 people in the village Torjun (2:24%). Characteristic variables examined in future hospital admission diagnosis (MRS) is 15 leptospirosis (71.42%), sepsis 3 (14.28%), dengue 3 (14.28%) and variable time hospital discharge diagnosis (KRS) 100% of leptospirosis.

Discussion

The average age of patients with leptospirosis was 25.8 years, the youngest age of 4 years old and the oldest was 64 years of age, Results of this study are not much different from the research urrimala, 2002 on the risk factors of age. Stating at the age of over 50 years of deaths due to leptospirosis reached 56%. Patients with leptospirosis yellow lining of the eye (damage to liver tissue), the risk of death will be higher. In some publications report the death rate between 3% - 54% depending on the organ system infected.

By sex, there were 15 respondents (75.42%) patients with leptospirosis male sex, so that people with more men than women, it is in accordance with the study of leptospirosis generally attack the man for more activities outside the home so as to contact with the road environment, sewers, garbage and dead rats in the street puddles at risk for the occurrence of leptospirosis. Stagnant water is a factor because when the occurrence of leptospirosis risks in most cases there is a puddle of his house (WHO, 2004, Johnson MA et al, 2004, Oktariniet al, 2007)

Based on the results of months of research in the Hospital (MRS) is April 26 (29.2%), while in May as many as 29 people (32.5%) 34 people spread over June to December 2013 in which precipitation reaches 183-140 mm, the temperature of 30C and humidity of 63.4 - 80.5%, When we connect with climatic factors, which is in line with research Ward.P. Michael (2002), namely that animal studies show no relationship of hospital admissions of patients after the occurrence of high rainfall, Research Yudhastuti 2011 in Gresik, East Java regency no precipitation relationship with leptospirosis cases due to heavy rainfall will cause puddles. The role of the presence of stagnant water around the home as leptospirosis disease transmission lines occur when the pool of water contaminated by rat urine or infected pet Leptospira bacteria (PNLevett, 2001). Through water and soil contamination by rat urine contained in a puddle of water will facilitate the entry of the bacterium Leptospira into the human body as the direct or indirect contact with mice or
intermediate host. Leptospirabacteria, especially species attacking the L. icterrohaemorrhagiae rats (Hundred norvegicus) and house mice (Hundred diardi) Ballum L. While attacking the little mouse (Mus musculus) Ballum L. According to the study there were 15 (71.42%) were hospitalized with leptospirosis diagnosed based on clinical symptoms such as fever, headache pain accompanied by fatigue, weakness, pain in the calf, coughing, while the remaining observations are needed to confirm the diagnosis of leptospirosis (BW Brisbois, Ali SH; 2010). That there is a differential diagnosis of Dengue Hemorrhagic Fever (DHF) and Febris. Based on patient residence districts, the highest 25 patients (28%) were in the region of GunungSekarKamoningKamoning health centers. Is a low-lying topography and area when rain puddles and certainly there is often an abundance of river water that often floods. Good activity habits bathing, washing clothes in the river increase the exposure to the Leptospira bacteria from animal urine contaminating the reservoir and river water will enter the body through the pores of the skin become softer and easily infected by germs. From the observations in the neighborhood of the river found respondents who have a habit of throwing garbage possibilities include also rat carcasses dumped in the river. If the rat carcasses containing Leptospira bacteria can contaminate the river water. Moreover, Spira like living on the surface of the water for a long time and is ready to infect when in contact with potential victims, because the Leptospira often referred to as a disease arising from water (water born disease) Urmimalla et al., 2002; Natarajaseenivasan.K. 2004). Animals should be kept away from people with sources of stagnant water due to Leptospira grow well on the surface of the water, especially fresh water for over a month but the sea will die (Nakamura, M., et al, 2006; Koizumi, Nobuo et al, 2009). From the data the optimal climatic conditions for living and breeding of leptospira is humid, temperatures around 25 °C, and pH near neutral (pH about 7); is a state that is always found in tropical countries throughout the year, or in the spring-summer and autumn in temperate countries. In these circumstances Leptospira can survive for weeks. The results of the study showed the incidence of leptospirosis Ward in both animals and humans occurs in the months from August to November in which high rainfall, high rainfall conditions cause water genanganleptospira bacteria can cause wandering around so menginfeks animals and humans (Narita, M. 2005; AssiminaZavitsanou and FotoulaBabatsikou; 2008).

Conclusion

Characteristics of patients with leptospirosis were recorded at the Department of Health and Hospitals Public in Sampang district, average age 25.8 years, male sex (75%), go Hospitals / MRS in April and May 2013 (61.7%) as the rainfall reached 183-140 mm, temperature 30 °C and humidity of 63.4-80%, the discovery of the mice type and RattusRattusnovergicusstanezumi were positive for leptospira bacteria.

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References


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