

Descriptive Assessment of Coordination Between Veterinary and Public Health Centers in Responding Report of Potential Rabies Animal Bites at Bener Meriah, Aceh

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ABSTRACT

A high case of potential rabid animal bites human is reported in Bener Meriah Regency of Aceh, Indonesia. The application of one health concept in controlling rabies is important at least by providing identical data of potential rabid animal bites in the veterinary (VHC) and public health (PHC) centers. This study aimed to compare the number and trend of animal bite cases reported by the VHC and PHC of Bener Meriah Regency at different time of the year. The primary data on the potential rabid animal bites reported in January-May 2017 were descriptively analyzed based on the victim name, bite location and time, and biting animals. The results showed that potential rabid animal bites reported by PHC (31 cases) were higher than those reported by VHC (10 cases). Identical cases reported by the two parties were 40% (4/10). The majority of cases reported by VHC (3/10) and PHC (9/31) occurred in February and April, respectively, and were mainly caused by dogs, followed by cats and monkey. To conclude, a distinctive in the numbers and trend of potential rabid animal bites were reported in VHC and PHC, a condition might be overcome by the implementation of one health approach.

Keywords: Plant extract, Anthelmintic property, Mortality time, Histopathology examination

1. INTRODUCTION

Nowadays, rabies is still a main zoonotic disease problem in many developing countries in Asia and Africa, including in Indonesia [1-3]. Several provinces in Indonesia are still categorized as rabies endemic areas [3]. In Aceh Province, high cases of potential rabid animals bite human were reported in the Bener Meriah Regency [4]. Therefore, a serious control effort needs to implement in this region.

Indonesian Government has established a national strategy for controlling rabies [5]. The strategy covers

socio-cultural and technical approaches. It is no doubt that controlling zoonotic diseases, such as rabies, requires a comprehensive, strategic, and targeted control and prevention approach with multi-sector and multi-level collaborations [6]. Furthermore, a collaborative and multi-disciplinary approach, from animal, human, and environmental health backgrounds at local, national, and global levels is very important to make a more effectual control program [7]. It is the strategy of one health concept that strongly encourages for implementation in controlling the zoonotic diseases [8].

Stakeholders understanding and commitment in the implementation of one health approach are among the main keys for the successful rabies control program [8,9]. In particular, good coordination and communication between related parties need to be maintained continuously [10]. For example, in the case of handling human bitten by potential rabid animals. In this case, technically the potential rabid animal is handled by veterinary services, and the human victim is treated by health services. Then, ideally the two parties need to share the information about potential rabid human bite and update condition of animal and human after bitten to each other. It is important to ensure that this scenario is implemented in the field, especially in the rabies endemic areas.

In this study we analyses, the application of one health approach in responding the case of potential rabid animal bites human based on coordination between veterinary (VHC) and public health centres (PHC) in Bener Meriah Regency of Aceh province. The objective of this study was to measure the strength of coordination between the two important parties in handling the case of potential rabid animal bites human reported. In addition, the data can be used for identifying the trend of cases at different time of the year, which can be used as an indicator for increasing preparedness for preparation when facing the peak time of animal bite occurrences.

2. MATERIALS AND METHODS

2.1. Time and Study Location

This study was conducted in August to October of 2017. The study was carried out in Bener Meriah, a regency in Aceh Province that lies between $4^{\circ}33'50''$ - $4^{\circ}54'50''$ North Latitude and $96^{\circ}40'75''$ - $97^{\circ}17'50''$ East Longitude (Figure 1).

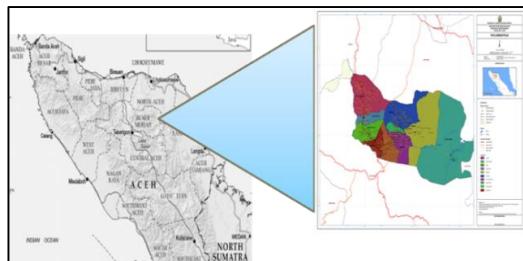


Figure 1 The map of Bener Meriah Regency of Aceh Province, Indonesia [11].

Administrative area of Bener Meriah Regency consists of lowland and highlands reach out to 1,941.61 square km. Total population in the regency is estimated about 139,890 persons in 2016. Total households in 2017 are estimated at 36,827. around 51% of overall population. Health facilities available include 1 hospital, 1 maternity hospital, 13 public health centres, 135 village maternity houses, and 17 family planning

clinics. The numbers of people under poverty line reached 21.14%. Competitive agricultural commodities in this region are coffee beans. Total coffee production in 2017 is 29,357,771 quintal with a total planted area of 46,263.57 hectares. The largest red meat production comes from buffalo (52,720 kg), cattle (47,580 kg) and sheep (90.09 kg). Poultry production comprises 67,535 kg of chicken meat and 747,480 of chicken eggs [11].

2.2. Study Type and Data Collection

This study was conducted using a survey approach. Data on potential rabid animal (dog, cat, and monkey) bite cases were obtained from monthly reports from January to May 2017 of four VHCs existed in Bener Meriah Regency. Data of human bitten cases by potential rabid animals were obtained from monthly reports from January to May 2017 of 12 PHCs existed in the regency. The numbers of cases based on the type of animal were also compared.

2.3. Data Analysis

The primary data of monthly reports in January to May 2017 in both VHC and PHC were descriptively compared and evaluated. The evaluation was concerned with their matching based on the date of cases reported, the identical name of human victims, and the locations of bite incidence written in the reports in both centres.

3. RESULT AND DISCUSSION

The results of this study showed that there were 10 animal bites reported to VHC from January to May 2017 (Figure 1). The 31 cases of potential rabid animals bite human were reported to the PHC (Figure 2).

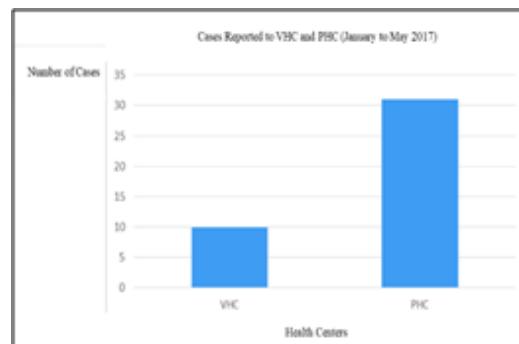


Figure 2 Number of potential rabid animal bites reported to VHC and PHC of Bener Meriah within January to May 2017.

Figure 3 illustrated that there were only four out of eight reports in VHC that identical and consistent with those in PHC. The similarity was found in the name of victims, the location, and time of bite cases as well as the type of animal that bites. Based on this finding it seems that not all cases of human bitten by potential

rabid animals reported to PHC were also reported to VHC. The high cases of human bite in January, March, April, and May reported to PHC were not well coordinated with VHC as shown by their low cases reports. Three cases reported to VHC in February were also not identical with all cases reported to PHC. This situation could happen because of lack of awareness of the family members of the victim or authorized community member to report the potential rabid animal bite cases to both centers. Another possible cause is the lack of coordination between VHC and PHC in this area. Sing *et al.* [2] suggested that complicated control of rabies in developing countries is related to limited communication and coordination between veterinary and public health centres.

Interestingly, 37.5% (3/8) of the potential rabid animal bites reported to VHC occurred in February whereas 29% (9/31) of cases recorded by PHC occurred in April. It might suggest the authorities in this area to develop a pre-emptive strategy of the increase risk of animal bite in specific time, before it happens. For example, running an elimination program or dog mass vaccination program [12].

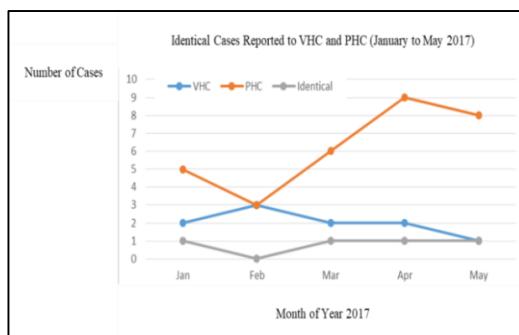


Figure 3 Number of identical cases of potential rabid animal bites identical data that reported to VHC and PHC of Bener Meriah in January to May 2017.

Furthermore, this study also found three types of potential rabid animals that bite human within January to May 2017 in Bener Meriah Regency, namely dog, cat and monkey (Figure 4). Most of bite cases were caused by dog, followed by cat and monkey. This result is in agreement with Tenzin and Ward (13) who suggested that dog bites are the principal source of human rabies in Asian countries, followed by cats and wildlife.

The highest cases of dog bite in Bener Meriah perhaps caused by higher populations of both owned and stray dogs in Bener Meriah Regency, although fix estimation is not conducted, yet. Reasons of people in this regency owning dog are for house guard, hobby or for helping them in farming or plantation. Further study is needed to explore the status of vaccination of the owned dogs and the owner concern on animal welfare.

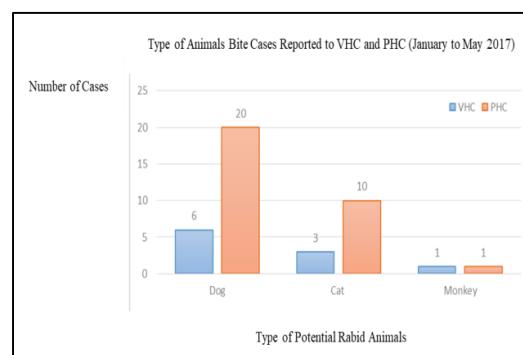


Figure 4 Type of animals that bite human reported to VHC and PHC within January-May 2017 in Bener Meriah Regency. VHC = veterinary health center, PHC = public health center.

Furthermore, from the data in Figure 4 it can be seen that the type of animal recorded in PHC report was not further communicated with the VHC. This might result in some difficulties in controlling the movement of potential rabid animal in this area, which some of them are probably rabies infected animals. Limited coordination between related institutions in managing zoonotic diseases is still a big problem in many countries [2, 10]. Therefore, strengthening the implementation of one health approach to support rabies control has been recommended by many studies [6, 8].

One strategy that might give some help in the implementation of one health concept in zoonotic diseases control is developing applications that allows integrated report digitally through online system. This will not only allow faster data sharing between the VHC and PHC or other relevant institutions in a regency but also open a possible data access, transfer, and monitoring to the provincial or even national health and veterinary command centres. This may support active implementation of one health concept in controlling rabies and other zoonotic diseases in the future.

4. CONCLUSION

A distinctive in the numbers and trend of potential rabid animal bites were reported in VHC and PHC OF Bener Meriah Regency of Aceh. This condition might be overcome by the implementation of one health approach.

AUTHORS' CONTRIBUTIONS

TRF, AA and EE are responsible for conceptualize, AW, RR and AN were charged for field work and data collection and analysis. All authors were actively involved in the manuscript preparation.

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