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Status of Rabies in Selected Pastoral Districts of Borena Zone Oromia Regional State, Southern Ethiopia

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Abstract

The assessment was conducted in pastoral districts of southern part of Ethiopia to discover status of rabies in human and animals in the area. A cross-sectional survey was conducted using structured questionnaire. The questionnaire was administered to pastoral communities, professionals working with animals and human to collect information on the status of rabies both in animals and human. Data on human and animals bite by rabid dogs in the past two years was also collected. In addition, human and animal death in past two years also recorded. This survey revealed that rabies is one of public health problems of the area. The communities keep a dog to use as a guard for their livestock and compound but they do not vaccinate their dogs because communities have no information about the availability of vaccines for rabies and some of them complains absence of vaccine supply in the area. The presence of a high number of stray dogs in the area also recorded during the survey. The study discovered that children are the most bitten community members relative to young and adult whereas sheep and goats are the bitten animal species. As a conclusion, the diseases are one of the public and animal health problems in the area that need great attention both from animal and public health sectors. Therefore, the collaborative action of Public and Veterinary professionals towards rabies control and prevention in animals and human is a mandatory to reduce the impact of disease both in human and animals.

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Keywords

Dogs; Human; Pastoral; Rabies; Stray; Status; Vaccine

Introduction

Rabies is worldwide distributed deadly zoonotic diseases caused by lyssa virus of family Rhabdoviridae. It is endemic in developing countries of Africa and Asia [1]. It is known to cause large number of deaths in humans and animals. It is disease that affects all warm-blooded animals, is prevalent in many regions of the world [2,3]. Source Dogs, cats, Fox, Bats and other carnivore in the world in different continents.

In Africa, source of rabies virus for human and animal infection is canine [1]. More than 95% of human rabies cases are due to dog bites and the rest associated with cats, fox and other carnivores [4,5,1]. The virus shades in the saliva of clinically ill animals and is transmitted through a bite of dogs [2].

In Ethiopia, is an African country with one of the largest rabies burdens on the African continent [6]. Previous reports showed that dogs were the dominant species responsible for transmission of rabies virus to human and livestock in Ethiopia [7,8]. It has been a common practice to provide post-exposure vaccines to humans bitten by dogs regardless of their rabies status [3,9]. In different towns and cities of the country including Addis Ababa, stray dogs are the most threat of rabies for human infection. High occurrence of rabies report in towns and cities due to the poor management of owned dogs and the presence of high population of unvaccinated stray dogs [2].

Basic information on the health burden of diseases both in human and animals are not recorded in pastoral area of southern Ethiopia. The death due to rabies in livestock and human is not available. In pastoral areas of southern Ethiopia, disease continued to be reported to human and animal health offices. However, due to movement of pastoral communities less information received. When we compare the data recorded in high land and lowland of the country, Ethiopia, the variation of diseases information data seen from previous researches. Most of official reports underestimate the true number of human rabies [10]. Therefore, this study designed to assess status of rabies in Moyale, Miyo and Dillo district of Oromia regional state, Ethiopia.

Materials and Methods

Description of the Study Area

This survey was conducted in three districts of Borena Zone Oromia Regional State; southern Ethiopia namely Moyale, Miyo and Dilo districts (Fig. 1). Moyale district is a pastoralist districts located in Borena zone, Oromia regional state, southern Ethiopia. It is 200 km and 775 km far away from capital of the zone Yabello and Capital of Ethiopia, Addis Ababa respectively. Moyale Town is the main gate for cross border trade route with Kenya and Ethiopia. Communities in southern Ethiopia (Borena) and northern Kenya are the same community with the same culture.

Figure 1: Map of study area.

All three districts made international border with Kenya (Fig. 1). Communities in these district are kush family members Borena, Gabra, Burji and Gari ethnic group . Town of Dillo district, Dillo and town of Miyo District Hidilola 725 km and 724 km far away from Addis Ababa, Ethiopia respectively. Both Dilo and Miyo district are also Pastoral districts. In Miyo districts

same communities practice farming in addition to livestock production whereas communities in Dillo district are real pastoralists.

Study Design

The questionnaire was developed and the districts selected purposively depending on previous rabies case reports to Yabello Regional Laboratory and District Animal Health offices. Out of thirteen districts, three districts were selected depending on two years rabies report data. Communities briefed about the purpose of the study and asked for their consent before interview commenced. The questionnaire administered to pastoral communities, Human health extensions, Development Agent (DAs) and animal health experts in selected PAs. Totally, twelve PAs selected and data collected.

Communities in the districts interviewed on status of rabies both on animals and human using structured questionnaire. The number of animal bitten and most frequently bitten animal species and house hold members by rabid dogs recorded. Victims registered by the districts' health centers for period of past two years were collected during study period. Number of animals bitten collected from household head and animal attendants. Human bitten by rabid dogs also recorded from household members and health center all selected kebeds/ PAs. I took data from house hold and animal health because the community not submits humans that took local medication given local healer. Information may be missed if only community or health post considered for data collection. To prevent repeated data collection from health post and house hold human that took post exposure vaccine not recorded at household level.

Results

Status of Rabies in Humans

In past two years rabid dogs had bitten more than two hundred humans in study area. The communities in study area keep dogs because dogs serve them as a guard and livestock keepers specially to keep sheep and Goats from predators. From family members, children were responsible to keep sheep and Goats. When dog rabid the first households' members to be bitten by rabid dogs were children. As this survey revealed, communities may or may not submit bitten human to health post. They explained confidently that, they use local/cultural treatment if bitten by rabid dogs. They explained me that, the local healer (called Chiressa by local name Afaan Oromo (Borena)) treat human bitten by rabid dogs by plant medication. As they mention, no death case reported on human who took plant medication given by know and experienced locally healer, Chiressa after exposure. Rabid dog bitten human cases, that took the local treatment of known chiressa would not visit health post and take post exposure vaccine.

In other hands, the children may not recognize or tell to their family if the scar made by rabid dog bite is small or made small would. This result in death of children without family recognition about dog bite of their child (Son or daughter). As observed by this survey, most human deaths reported so far was associated with silence of children after bitten by rabid dogs and adults fail to recognize the bite made was either by rabid dog or health one. This arises from homeless dogs (stray dogs) that were not known to differentiate either they are health or rabid. That was due to the movement of dog's long distance from their area to new area where the dogs had never seen in the area and may continue moving until death biting different human and animals.

Figure 2: The bitten family members in the study area.

Status of Rabies in Animals

Most animal bitten by rabid Dogs were small ruminants (Sheep and Goats) ordered by cattle and Donkeys. Because the dogs were the main shepherd of small ruminants in study area. The bite of small ruminants may not only by their keeper but also by stray dogs that get rabid. The status of the diseases in area shown that, rabies was also important issue in animal health as it was seen in human. Once the animals bitten by rabid dogs the only treatment that community had in area was local healer (Chiressa). The treatment made by local healer was perfected and no death reported once animals treated properly by experienced local healer (Chiressa). The treatment given in area was prepared from plants that were only known by local healer (Chiressa). The problem that leads animals to death was that it was difficult to recognize animals

bitten by rabid dogs. The animals get treatment only when animal attendants observe that animals bitten by rabid dogs. Or the wound was easily observable on animals after bitten and rabid dogs seen in the area on the date that animal were bitten and wounded.

Figure 3: The bitten family members in the study area.

However, communities with high livestock number fail to recognize that their animals bitten by rabid dogs. This results in death of livestock due to rabies mainly small ruminants in area. The diseases also need to consider as economically important diseases in the area due to livestock loss and expense for treatment of the diseases.

Discussion

Rabies was an important disease of livestock and animals in study area. The most frequently bitten human was children assigned to keep livestock. In animals sheep and goats were the most bitten animals. The stray dogs are the main cause of animal and human bites in pastoral districts of the area. This study is in agreement with study conducted so far on rabies in Ethiopia indication rabies as primarily a disease of dogs in Ethiopia [11]. Presence of high number of stray dogs remained the main problem of study area by putting public health at high risk. It was due to bite of human and difficulty to recognize health status after it bitten human for early treatment.

The most bitten human reported in study area were children because they are responsible household members to keep small ruminants. The dogs of the pastoralist which serving them as a guard have no access of vaccination against the diseases resulting for easy transmission of

diseases among dogs in the area. In addition, the rabid dogs reported to bite children while playing on a field near to their residence. This study was in agreement with study conducted by Pieracci, 2016 due to access of children to suspected domestic canine and pets without vaccination leading to death report in children [12-14].

In this study, Cattle and Donkeys were frequently bitten animal species by rabid dogs next to small ruminants (sheep and goats). Sheep and Goats were bitten dogs most frequently than species in study area while the dogs keep them from predators they were also getting infection by rabid dogs. The major means of transmission of the disease is through any types of bite, scratch, or other situation in which saliva, cerebral, spinal fluid, tear, or nervous tissues from suspected or known rabid animal or person enters an open wound, is transplanted into, or comes in contact with mucus membrane of another animals or person.

In this study the status of rabies in Ethiopia to high with high risk of human and animal infection study area. In the area vaccination of dogs is not known but contact between dogs and human as well as between animal was not controlled. No vaccination of dogs but high contact dogs with human resulting with high exposure of human to diseases. When community exposed to diseases they used to use local treatment (medication). The medication from plant that given by known and experienced healer (Chiressa). The knowledge of this traditional medication transmissible (patrimonial) from one generation to other generation with in a family.

Conclusion

Since the appearance of this hypothesis not much has been published the literature and what in conclusion, rabies found to be public health challenge of human and economically important diseases in the area. The diseases have vaccine for dogs but people were not vaccinating their dogs due to less awareness of community poor or absence of vaccine. Children had been proven to be at a higher risk of being bitten by dogs than adults in the area. Sheep and goats were frequently bitten animals in ordered by Cattle and Donkey. Overall, community knowledge to treat human and animals bitten by rabid dogs is asset for human kind in the world. Therefore, concerned body need to work with these community to make the treatment pharmaceutical produced drug. In addition, providing rabies vaccine supply in study area and collaborative activities of animal and human health professional is mandatory.

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