

Retrospective Study

An Overview of Animal-Related Injuries

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ABSTRACT

Aim

This present study aimed to evaluate a group of patients living in a rural area admitted to emergency room due to animal-related injury and to evaluate this issue from a general point of view.

Material and Methods

The study included 34 patients between the dates April 2015 and April 2017. The injury caused by donkey, horse, and cattle was considered animal-related injury. The demographic features, blood tests, imaging tests, hospitalization status and outcomes of patients were evaluated retrospectively.

Results

Of the 34 patients, 32(94.1%) were male. The mean age of the patients was 27.56 ± 21.72 (min:5-max:83). The youngest patient was five and the oldest one was 83-years-old. Three patients were over 65-years. Eight of the patients (23.5%) were hospitalized. The average hospitalization day of the patients was 4.53 ± 3.46 (min:0-max:10). Acute pathology was detected on cranial tomography six of the patients (17.6%). None of the patients had pathology on cervical tomography. Acute pathology was detected on thoracic tomography five of the patients (14.7%). Acute pathology was detected on abdominal tomography four of the patients (11.8%).

Conclusion

In conclusion, people living in rural areas should be informed about animal-related injuries. The arrangements should be made to prevent these injuries in rural areas.

Keywords

Trauma; Animal-related injury; Emergency room.

INTRODUCTION

Trauma is one of the leading health problems in the world. Trauma mechanisms vary based on the age group, occupation, gender and the geographical place where people live. In the rural area, animal-related injury is a common public health problem.¹ This is an important problem for the people who make their living by ranching. Kars, eastern of Turkey and its surrounding area has a unique characteristic for ranching because its geographical feature is very suitable for growing up animals such as cattle, horse, and donkey.² In Kars region, horse-javelin competitions

are an appreciated regional sport.² Additionally, horses and donkeys are being used for carrying loads. The animal-related injury can be penetrant or blunt. At the same time, being bitten, falling off and being kicked have trauma mechanisms independent from each other.³ Falling off the horses or donkeys also have similar mechanisms to falling off the height. The injured region cannot be predicted when being kicked by an animal and also defense mechanisms of the person are unaffected. For those reason, kick injury by an animal have a different mechanism from the others.⁴

This present study aimed to evaluate a group of patients

living in a rural area admitted to emergency room due to animal-related injury and to evaluate this issue from a general point of view.

METHODS

The study included 34 patients who admitted to Kars State Hospital between the dates April 2015 and April 2017. The animals that caused the injury were donkey, horse and cattle. The demographic features, blood tests, imaging tests, hospitalization status and outcomes of patients were evaluated retrospectively. Data on patients were obtained from hospital records. Ethics committee permission was not taken because only the records were used. No written or verbal consent was received. Permission was taken from hospital administration. All statistical calculations were performed by SPSS 15.0 (SPSS for Windows, Chicago, IL, SA).

RESULTS

Of the 34 patients (Table 1), 32(94.1%) were male. The average age (Table 2) of the patients was 27.56 ± 21.72 . The youngest patient was five and the oldest one was 83-years-old.

Gender	Number of patients	%
Male	32	94.1
Female	2	5.9
Total	34	100

Age	Number	Mean	Median	Standard Deviation	Minimum	Maximum
	34	27.56	16	21.72	5	83

Eight of the patients (23.5%) were hospitalized. The average hospitalization day (Table 3) of the patients was 4.53 ± 3.46 . Five of these patients hospitalized and three of them referred to the intensive care unit. Three of the patients were hospitalized by Neurosurgery Department (the most common injury was head neck region), two of the patients hospitalized by Pediatric Surgery Department, one of the patients was hospitalized by Orthopedics and Traumatology Department, one of the patients was hospitalized by Thoracic Surgery Department, and one of the patients was hospitalized by Eye Diseases Department.

Day	Number	Mean	Median	Standard Deviation	Minimum	Maximum
	8	4.53	4	3.46	0.25	10

Acute pathology was detected on cranial tomography six of the patients (17.6%). None of the patients had pathology on cervical tomography. Acute pathology was detected on thoracic tomography five of the patients (14.7%). Acute pathology was de-

tected on abdominal tomography four of the patients (11.8%).

Two patients underwent extremity tomography. One of them had broken humerus tuberculum majus. One of them had fracture in the elbow joint (Table 4).

Acute pathologies on abdominal tomography	Grade 4 parenchyma injury, free fluid surrounding on the spleen, 2 cm free fluid between pelvic gults, subdiaphragmatic air in liver anterior, 3 cm free fluid in the pelvis, contamination in the right paracolic area, minimal free fluid in the pelvis, suspected hyperdense area in the liver.
Acute pathologies on cranial tomography	Comminuted fractures of frontal sinus, nasal bone and ethmoid bone, pneumocephalus, exophthalmus in the right eye, increase of front-to-back diameter of globus, interhemispheric suspected bleeding at the vertex level, milimetric hemorrhage contusion foci in frontal area, frontal and periorbital soft tissue swelling, fractures of nasal bone, maxillary sinus and frontal bone, parietal soft tissue swelling, linear fracture in temporal bone squamous part.
Acute pathologies on thoracic tomography	Linear rib fracture, minimal pneumothorax, contusion, massive pneumothorax.
Acute pathologies on extremity tomography	Fracture of humerus tuberculum majus

DISCUSSION

The studies show that 1-3% of the admissions to emergency rooms are injuries associated with animals. Most of these patients have mild injuries and mortality rate of them is between 0.1 and 0.5%.⁵ Animal-related injuries commonly occur in the young and male population. Because, young and male people use the animals for economic gains and sports. This patients group's age was reported as 27 by Temes et al,⁶ 32 by Brett et al,⁷ 37 by Kousuke et al,⁸ 34 by Johns et al,⁹ and 29 by Caglayan et al.⁶⁻¹⁰ The studies show that male population is predominant for this kind of injuries. Moini et al,³ Caglayan et al,¹⁰ and Yildiz et al,² reported animal-related injuries are more common in the male population.^{3,10,11} In our study, there were more young and male patients similar to the literature. Prevalence of female population was seen in very rare studies.¹²

In this study, the rate of discharge was about 76%. Caglayan et al, showed that most of the animal attacks were mild and patients had ambulatory treatment at 62%.² According to, Zhang et al,¹³ this rate was 60%. Our study also had a similar rate of discharge.

Horse and donkey kicks are among the causes of blunt trauma. However, cattle attacks can cause penetrant and blunt trauma. It can be difficult to predict the injuries caused by these traumas. Head-neck region injuries are the most commonly seen in the literature.⁹ In this study, most common pathology was intracranial.

Norwood et al, reported 14% rate of abdominal trauma and Caglayan et al, reported 8.3% rate of this kind of trauma due to animal-related injuries.^{10,14} It was seen as 11.8% in our study, which was similarly with the literature.

Injuries related with animals are usually in the front of

the body because those injuries usually happen during an interaction with the animals.¹⁵

Animal-related injuries are a major, poorly recognized, and public health problem. These kind of injuries are responsible for tens of thousands of deaths worldwide each year. However, many patients are poorly documented and many patients die before arriving a medical center.¹⁶ Animal-related injuries die before receiving medical care especially in third-world countries.¹⁷ Any deaths were observed in our patients. Although animal-related injuries are serious, the absence of mortality may be due to early access to the hospital and good health care.

The small number of patients is the biggest limitation of the study. The reason for not having too many patients is that the patient records are irregular.

CONCLUSION

People living in rural areas should be informed about the dangers associated with animals and necessary precautions should be taken. In the future, demographic studies with more patients are needed.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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