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THE EFFECT OF FMD DISEASE ON 3RD TRIMESTER PREGNANT COWS AND THEIR FETUSES

Abdulameer A.Hatem , Majid A. Talal

College of Veterinary Medicine,University of Kufa ,Kufa,Iraq

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ABSTRACT

The study was carried out in Al-Najaf province to evaluate the effects of FMD disease on sixty pregnant cow at 3rd trimester time and on its fetuses , during June , July and August of 2014 .

The animals were divided into three groups (20 cows for each) according to gestation period A , B and C on seven, eight and nine month of gestation respectively. The cows were given antipyretic , systemic antibiotic and local treatment for mouth and hoofs lesions .

Results showed 15% , 20% and 30% of cows were aborted in seven , eight and nine month of gestation respectively . None of fetuses were found dead in group A , whereas 3% and 15% were dead in group B and C respectively .

INTRODUCTION

Foot and mouth disease (FMD) is a highly contagious viral disease affecting cloven-hoofed domestic and wild animals and is characterized by fever and pain from vesicles , erosions and blisters in the mouth, udder, and teats and on the skin between the toes and above the hooves(1). In Iraq, the disease is endemic and occurs round the year and being widespread in nature with the potential of causing severe economic losses result from loss of productivity, reduced milk production, reduced growth rate of meat animals, reduced fertility (abortion rate up to 10%) and delays in conception, death of very young animals and trade disruptions in animals and animal products (2 , 3). Recently the main causes of disease in Iraq were O , A strains and A-Iran-05 (4 ,5 , 6). The disease affects all breeds and ages of cattle. Chronic heat stress can negatively affect an animal's growth performance and the immune competence to some bacterial or viral infection (7, 8) .

There are different factors that influence a particular animal's response to infectious diseases . In briefly, these factors can be grouped in genetics, health, production status, environment and previous exposure to pathogens (9).

Temperature, humidity, radiant heat, and wind all affect heat stress in cows. they become stressed and release hormones related to stress. These hormones lead to a release of different hormones that change the uterine environment in which the embryo is developing (10).

Exotic and cross-bred cattle suffer more severely, with a mortality rate of 10 to 20%, against only 2 to 3 per cent in the local breeds (11).

Occurrence of abortion is one of the most economic concerns after effect of FMD in dairy cattle during hot season.

The present study is focused on evaluation of environmental stress on 3rd trimester pregnant cows infected with FMD and their fetuses.

MATERIALS AND METHOD

The study was conducted at Al-Najaf governorate located in Iraq at 32ºN latitude and 44ºE longitude at an altitude of 70 m above mean sea level . Data of environmental temperature and humidity were collected from the Authority Iraqi air adversity (12) Figure 1 .

Sixty crossbreed pregnant dairy cows at 3rd trimester of gestation , the animals were subdivided into three groups , the first group (A) consisting of twenty animals who whom at the seventh month of pregnancy. The second group (B) containing twenty pregnant cows in eighth month, while the third group (C) having twenty cows in the last month of gestation. Diagnosis of gestation period was based on history of artificial insemination and rectal palpation .

All animals were subjected to therapeutic efficacy with intravenous flunixin meglumine 1.1 mg/kg/day as single dose (13) , and enrofloxacin subcutaneously as a single dose of 7 mg/kg of body weight (14) . Accompanied with 5% Povidon iodine and oxytetracyclin spray for local treatment on mouth , hoofs and teats lesion.

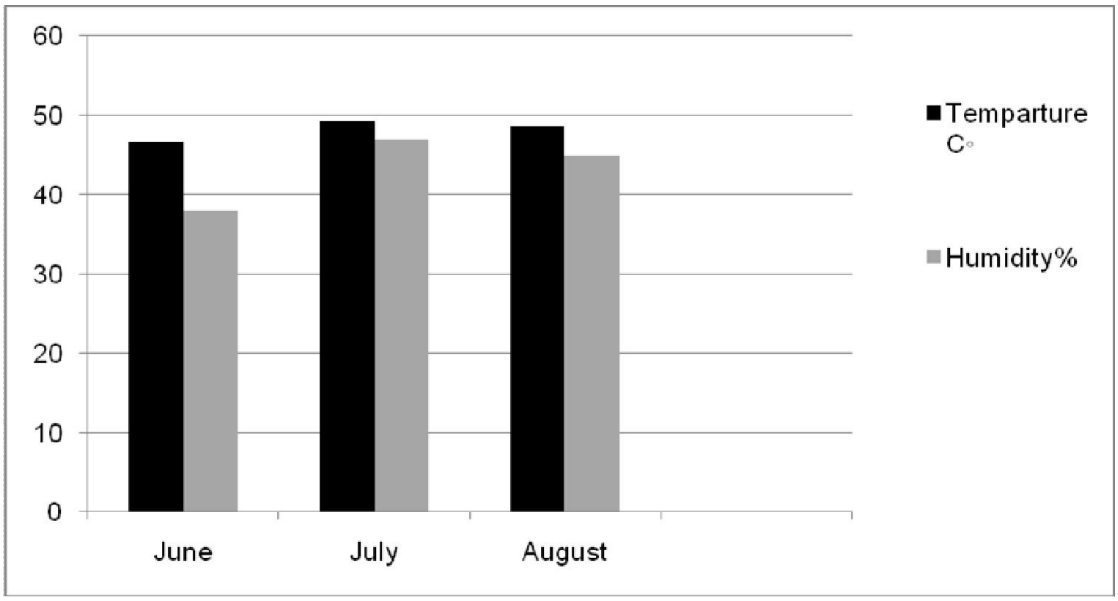

Figure (1) Mean of temperature and humidity among June , July and August 2014.

RESULTS AND DISCUSSION

Initially , the disease is endemic in Iraq and occurs more in the summer season (15). Here, the climatic condition during these months particularly July and August are more hot and humid in comparison to the other months of the year could be the possible cause of disease. The chronic heat stress condition negatively affects both humoral and cellular responses against foot and mouth disease in line with(2).

The outbreak of Foot and Mouth Disease (FMD) occurred between Jun & September 2014. During this period the environmental temperature was between 45-51 ºc . The disease was diagnosed on the case history, the clinical features , lesions and sudden onset and spread within a short period of time. At the beginning the affected animals show fever (41 -42ºc), anorexia, depression and acute painful stomatitis, profuse salivation, a characteristic smacking of the lips and Vesicles/blisters on the mouth, feet (inter-digital space, coronary band) and teat, which were generally ruptured within 24 hours due to movement of jaw, feet and during milking respectively, leaving a raw painful surface . Vesicular disease resemble FMD closely but no information in Iraq (16).

The highest percentage of aborted cows were recorded in group C (30 %) , while the lowest percentage were recorded in group A (15 %) Table (1) , the interpretation of these results , that the animals on group C on the last month of gestation they

become stressed and released hormones from adrenal gland related to stress (corticosteroids) . These hormones goes to liberation of another hormones that alter the surrounding condition in the pregnant uterus and lead to increase of mortality rate of fetus , while in group A (seven month of pregnancy) the fetus are less susceptible to hormonal releasing by stress in line with (17 , 18).

Table (1): Numbers and percentage of aborted cows and dead fetus

group	Aborted	delivered	Death after birth	Percentage of abortion	Percentage of dead fetus
A	3	17	-	15	-
B	4	16	1	20	5
C	6	14	3	30	15
Total	13	47	4	21.6	6.6

تأثير مرض الحمى القلاعية على الأبقار وأجنتها خلال الثلاث أشهر الأخيرة من الحمل

عبد الأمير عبد حاتم، ماجد عبد طلال

كلية الطب البيطري ، جامعة الكوفة،الكوفه ،العراق

الخلاصة

أجريت الدراسة في محافظة النجف الأشرف وذلك لتقييم تأثير الأصابة بمرض الحمى القلاعية على الأبقار واجنتها خلال الأشهر الثلاث الأخيرة من الحمل خلال الأشهر حزيران وتموز وآب لسنة 2014 .

قسمت الحيوانات الى ثلاثة مجموعات وحسب مدة الحمل حيث مثلت المجموعة أ الأبقار في الشهر السابع من الحمل في حين كان المجموعتين ب وج في الشهر الثامن والتاسع من الحمل على التوالي ، تم علاج الأبقار المصابة بخافض الحرارة والمضادات الحيوية والعلاج الموضعي للآفات الموجودة في الفم والقدم .

أظهرت النتائج ان الأجهاض حصل 15 ،20 و30 % في المجموعات أ ، ب وج على التوالي ولم تظهر المجموعة أ اي موت للأجنة في حين كانت 3% و 5% في المجموعتين ب و ج على التوالي ، نستنتج من ذلك انه كلما كان الحمل في مراحله الأخيرة كان تأثير الأصابة بمرض الحمى القلاعية شديدا .

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