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Hypothermia in a Lamb: A case report

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Abstract

A 2 month old lamb was presented with the history of cold exposure, depression and anorexia from last few days. On clinical examination, body temperature recorded was 36 degree C, with cold extremities, mucous membranes slightly dry, weak heart rate and respiration rate. Animal was managed with dextrose (20%) and supportive treatment, owner was advised to feed animal with warm milk and to provide warm environment. To protect the animal from hypothermia and associated hypoglycemia especially during winter months, it is highly recommended that proper management practices must be practiced.

Keywords: Hypothermia, lamb, management

Introduction

Hypothermia is a low body temperature, which occurs when excess heat is lost or insufficient heat is produced [1]. Neonatal hypothermia is a major cause of morbidity and mortality in newborn farm animals within the first few days of life. As lambs have small body weight in relation to their surface area, hypothermia may be a potential cause of loss. There may be severe temperature shift in a newborn once as they leave the warm, comfortable environment of the uterus and enter a cold winter-like environment. The wet newborn can lose a large amount of heat because of the large surface area exposed. It has been seen that the hypothermia accounts for more than 15 per cent of neonatal mortality [2].

Hypothermia also occurs, secondary to many diseases in which there may be a decrease in the ability to shiver and skeletal muscle contraction associated with decreased cardiac output. Generally newborn farm animals have two ways to generate heat after they are born; one is by shivering thermogenesis mechanism that can produce small amounts of heat through the involuntary contraction of muscle tissue as well as muscle contractions that occur during normal movement [3]. Increased heat production in neonatal calves in the first several hours after birth can be significant when the animals first stand for 10 minutes. Other is non-shivering thermogenesis by brown fat which is present in neonatal lambs, kids and calves but not in piglets, located mainly in the area around the kidneys in newborn farm animals. It is the main energy source for heat production in the newborn prior to suckling colostrum. Suckling of colostrum within a few hours of birth is important due to transfer of immunity that occurs from dam to newborn. Also the role of colostrum in supplying nutrients to meet the energy demands in the first few hours of life [4]. Cold exposure resulting in hypothermia is a primary cause of lamb mortality. Cold ambient temperature can change the normal homeothermy of animal, and the body temperature may changes transiently. In case of domestic animals this also leads to the activation and regulation of immune system against the new exposed antigens by paying off the metabolic machinery of animal, thereby compromising the growth, production and reproductive performances [5].

Case History and Clinical findings

The lamb was presented with a history of decreased body temperature, depression and anorexia. On physical examination, animal was cold, temperature recorded at the time was low and it was 96.8°F, representing hypothermia for most farm animal species. Other symptoms included weakness, decreased activity, cold extremities and poor suckling reflex (Fig 1). On further examination, mucous membranes of the oral cavity were cold with lack of saliva. Palpebral reflexes were decreased, skin and extremities cold with mucous membranes pale.

Treatment and Discussion

As the lamb was hypothermic with poor suckling reflex, it was advised to place the lamb immediately in warm box with a heater blower so that the animal could breathe warm air.

As the suckling reflex was poor, 20% Dextrose at the dose of 10 mL/Kg body weight was given (100 mL total dose). The fluid was pre-warmed to room temperature. The animal was also given a shot of Dexona (0.5 ml IM stat) and supportive supplement of vitamin complex (Belamyl -3 ml for 4 days O.D IM). Feeding of warm /milk colostrum/drinking water, minimum three times a day was suggested for the speedy recovery. Body temperature was continuously monitored till normal temperature (102.5 F) regained. To prevent any chance of secondary bacterial infection, a three day prophylactic cover of antibiotic (Amoxicirum Forte 1 gm B.D IM) was also given.

Drugs such as dexamethasone reduce the gradient between skin and body core temperature. It could reduce shivering by regulating immune responses [6]. Hypothermia and starvation go hand in hand and insufficient body reserves of energy due to insufficient feed intake may result in insufficient heat production and dextrose may provide the immediate supply of energy. Colostrum/milk intake is also critical in lambs if the suckling reflex is normal that can increase the thermo-neutral and metabolic rates due to increased availability of energy substrates. Another reason of high mortality rates in newborn lambs may be due to the effects of cold exposure and starvation because many of these lambs are born during the late winter and early. The entire body, especially the extremities, becomes cold and the rectal temperature is below 37°C and may drop to 30°C in neonates. Cold injury or frostbite of the extremities may occur in extremely cold conditions. Non-shivering induced thermogenesis may occur, resulting in depletion of brown adipose tissue deposits. Sometimes at the extreme of cases, it may result in muscular weakness and mental depression, respiratory failure, recumbency and a state of collapse and eventually, coma and death [7].



Fig 1: Hypothermic lambz

In adult animal, cold stress negatively impacts a variety of production parameters like milk yield, milk composition and quality, rumen health, growth and reproduction. Newborn calves which have temperature of 102-103 degree F or higher are considered normal, while those with a temperature of 97 to 100 degree F are mildly hypothermic. They generally recover once placed in a sheltered or warm environment and fed with warm colostrum/milk. Those newborns with temperature lower than 96 degree F are considered hypothermic and need immediate intervention and treatment. Provision of heated environment and feeding of milk or

colostrum regularly until the temperature reached 101 degree F was enough to return to its mother. So the best way to recognize hypothermia is by recording the temperature and observing its behavior. The normal temperature of a lamb is 39-40 degree C (102-103.5 degree F). Therefore sudden exposure of neonatal animals to cold ambient temperature can result in subnormal body temperature, shivering and even decreased cardiac output, heart rate and blood pressure. The hypothermic newborn should be promptly treated as the body reserves are severely depleting in cold stress and it will take time to regain the energy reserves. Therefore the proper management practices must be practiced which include proper maternal attention, adequate bedding especially during winter months and also adequate balanced maternal nutrition.

References

1. Hancock RD, Coe AJ, Silva FC. Perinatal mortality in lambs in Southern Brazil. *Tropical Animal Health Production* 1996;28(4):266-72.
2. Yared JP, Starr NJ, Hoffmann-Hogg L, Bashour CA, Insler SR, Connor M, *et al.* Dexamethasone decreases the incidence of shivering after cardiac surgery: A Randomized, Double-Blind, Placebo-Controlled Study. *Anesthesia Analogy* 1998;87:795-9.
3. Radostits OM, Gay CC, Hinchcliff KW, Constable PD. *Veterinary Medicine, A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats.* Elsevier Saunders, Spain 2009 9th edition.
4. Carstens GE. Cold thermoregulation in the newborn calf. *Veterinary Clinics of North America: Food Animal Practice* 1994;10(1):69-106.
5. Mattson MP. Perspective: Does brown fat protect against diseases of aging-Ageing Research Reviews 2010;9(1):69-76.
6. Hammon HM, Steinhoff-Wagner J, Schonhusen U, Metges CC, Blum JW. Energy metabolism in the newborn farm animal with emphasis on the calf: Endocrine changes and responses to milk-borne and systemic hormones. *Domestic Animal Endocrinology* 2012;43(2):171-185.
7. Radostits OM, Gay CC, Hinchcliff KW, Constable PD. *Veterinary Medicine, A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats.* Elsevier Saunders, Spain, 11th edition, 2011.