



Unit : Ketosis

Lesson : 5

Treatment of Bovine and Ovine Ketosis

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Treatment

Replacement Therapy

- **500 ml of 50% dextrose IV**
- **Intraperitoneal injection of 20% dextrose also used**
- **Primary ketosis- I/V injections of 100 to 500ml of 50% glucose gives marked clinical improvement.**
- **Secondary ketosis requires correction of the primary condition**
- **Ketosis secondary to the butyrate content of silage – dietary manipulation to eliminate or dilute the silage**

Glucose Precursors

Propylene glycol

- As a drench
- 225 g – twice daily for 2 days
- Followed by 110g daily for 2 days
- Glycerol 500g twice daily for 10 days

Other glucose precursor

- Sodium propionate : 110 to 225 g daily
- Ammonium lactate – 200g for 5 days
- Sodium lactate 1g/kg initially followed by 0.5g/kg for 7 days PO twice daily used as feed additives as an alternate glucose source



Treatment – Sheep

- **Early treatment – response is good**
- **5-7g pf glucose IV 6-8 times a day with 20-40 units of Zinc**
- **protamine insulin –IM every other day for 3d**
- **Propylene glycol- 110g/d PO**
- **Oral therapy- 160ml of a solution containing – 45g glucose every**
- **4-8h, 8.5g sodium chloride, 6-17 g glycine and electrolytes**
- **Removal of fetus – Caesarean section**



Hormonal Therapy

Glucocorticoids

10mg of Dexamethasone 21 isonicotinate produce hyperglycemic state for 4 to 6 days

Dexamethasone sodium phosphate (40mg) and flumethasone (5mg) – short acting

Isoflupredone acetate- 10-20mg

both glucocorticoid and mineralocorticoid action





Anabolic steroids

60 mg and 120 mg of trenbolone acetate

Repeated treatment causes profound hypokalemia

Glucocorticoids are used to prolong hyperglycemic effect by decreasing tissue uptake of glucose

Reduces milk production for up to 3 days





Lipotropic Agents

- **Choline (25 to 50g) PO daily**
- **Choline is a precursor of phosphatidyl choline which is required for phospholipid synthesis**
- **L-Methionine- precursor for phospholipid in the synthesis of apolipoprotein essential for VLDL formation**

Miscellaneous Treatment

- **Cysteamine (750mg IV every 2 to 3 days)**
- **Amino acid lysine also play a role in apolipoprotein synthesis**
- **Vit B 12 is an essential cofactor in the metabolism of propionate as it enters the TCA cycle**
- **Nicotinic acid or nicotinamide – 6g PO once daily for 10 weeks after calving**
- **Nicotinamide enzymes were reduced in mammary glands in ketotic cows**



Miscellaneous Treatment

- **Niacin decreases blood ketone levels and increases blood glucose**
- **Niacin is antilipolytic**
- **Supplemented – 2 weeks prior to 12 weeks after parturition**

- **Chloral hydrate – increases the breakdown of starch in rumen and influences the production of propionate**
- **Initial dose is 30g followed by 7g twice daily for several days**
- **It is helpful for its sedative effects in the treatment of nervous form of ketosis**

- **Monensin – reduces clinical and subclinical ketosis**
- **Monensin decreased the acetate to propionate ratio in the rumen because of its effect on rumen fermentation**
- **Increased availability of propionate as a glucose precursor helps to suppress fat mobilization and ketone formation**
- **Supportive therapy- rumen transfaunation, provision of variety of palatable feed and exercise**



Control – Cattle

- Preparation for next lactation should not begin until about 4 weeks prior to calving
- Silage, hay or pasture should be a maintenance ration
- Supplement with 1kg/ d concentrate and should be gradually increased to 5 kg/d at the calving time
- Increase concentrate gradually as production increases
- Give hay @ 3kg/100kg body weight for maintenance
- 1kg grain for every 3 kg milk production

Control – Cattle

- **Carbohydrates should be readily digestible**
- **Oats or maize should be crushed**
- **Adequate amounts of cobalt, phosphorus and iodine should be given**
- **Prophylactic feeding of sodium propionate -110g/d for 6 weeks from calving**
- **Propylene glycol – 356ml/d for 10 days after calving (6% of a concentrate ration for 8wks)**
- **Monensin given as a growth stimulant @ 25mg/d in grain feed mix**



Sheep

- **Body condition scoring should be maintained at 2.5 to 3.0 at 90 days of gestation**
- **Last 2 months are important – as 70% of lambs birth weight is gained during last 6 weeks of pregnancy**
- **Concentrate @ 0.25kg/d increasing to 1 kg/d in the last 2 weeks**
- **Avoid sudden change in the feed**
- **Shelter should be made available**





Thank you