DEALING WITH TOXEMIA, KETOSIS AND MILK FEVER

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WHAT IS PREGNANCY TOXEMIA

SYMPTOMS
Depression:
\[\downarrow \text{DMI}\]
\[\downarrow \text{Exercise}\]
\[\downarrow \text{Body temperature}\]
~Grinding teeth
~Incoordination
~Circling
~Recumbence
~Tremors
~Opisthotonos (Stargazing)
~Death of fetii
~Death of Doe

CAUSES
DECREASED DRY MATTER INTAKE LEADS TO NEGATIVE ENERGY BALANCE
Poor feed quality ⇒ Poor digestibility

TEMPERATURE STRESS
Isothermal?
Too hot ⇒ DMI
Too cold ⇒ burns too many calories with inadequate intake

TEMPERATURE & HUMIDITY REQUIREMENTS
Isothermal temp – 46° to 52° F
Optimal temp – 50° to 64° F
Minimum temp – 43° F
Maximum temp – 81° F
Humidity – 60% to 80%
OTHER FACTORS LEADING TO TOXEMIA & NEGATIVE ENERGY BALANCE

Small body size relative to kid size
Goat too fat / too thin ⇒ Hepatic Lipidosis
  ~ Lack of exercise
  ~ Large litter size
  ~ Disease issues

Stress:
  ~ Predator Attacks
  ~ Hauling
  ~ Weather Extremes
  ~ Litter Size: 70 Days

DIAGNOSIS
Blood tests for NEFA’s should be below .400 meq/l BHB over .7 mmol/l = toxemia (negative energy balance)

Urine or milk keto-strips for BHB
PortaBHB milk ketone test

TREATMENT
If detected early by NEFA’s or Ketones:

1. Increase dietary energy or increase ration energy density
2. Light exercise
3. Drugs to increase liver metabolism of fat
4. Dry goat rations with anionic salts
5. Supplement propionic acid
6. Calcium SQ or oral
7. B Complex Vitamins

Treatment:

~ IV or oral glucose or glucoses precursors

Avoid overtreatment with IV glucose or glucose precursors as this leads to hyperglycemia which has a negative impact on abomasal motility and function (McGuirk, 2007)

Reserve corticosteroids only for uncomplicated ketosis 4 – 9 weeks into lactation
Avoid corticosteroids as toxemia does are already stressed and have elevated endogenous steroids.
Adding additional steroids will lead to prolonged hyperglycemia and poor abomasal function. Also, repeated doses will lead to hypokalemia.
PREVENTION
Try to minimize stressors or conditions that decrease dry matter intake
  ~ Encourage exercise
  ~ Maintain healthy rumen function
  ~ Monitor body condition
  ~ Divide and conquer
Energy requirements in last month of gestation:
  1 ½ - 2 X maintenance with single fetus
  3 – 3 ½ X with multiples
Never change grain amounts suddenly it leads to acidosis and decreased rumen function.
In sheep, shearing reduces toxemia.

KETOSIS
Fatty Liver Disease
  ~ Occurs immediately post kidding
Primary Ketosis:
  ~ Occurs near time of peak production
  ~ Failure of adequate energy intake causes excessive fat mobilization leading to ketosis
    which lowers intake and raises ketone levels.
Treat:
  ~ Oral or IV glucose or glucose precursors
  ~ Change diet to increase energy intake
  ~ Watch closely to prevent acidosis
Treatment for Ketosis
  ~ Oral or IV glucose or glucose precursors
  ~ Avoid overtreatment with IV glucose or glucose precursors as this leads to hyperglycemia
    which has a negative impact on abomasal motility and function (McGuirk, 2007)
  ~ Reserve corticosteroids only for uncomplicated ketosis 4 – 9 weeks into lactation
  ~ Change diet to increase energy intake
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MILK FEVER (Hypocalcemia)
Time of onset:
  ~ Can occur up to 6 weeks prior to parturition when calcification of fetal bones occurs. This is rare in
dairy goats but more common in the meat breeds. If it occurs, it will be a trigger for toxemia by
decreasing feed intake.
  ~ Often occurs in dairy animals when milk production begins as the demand for calcium is great.
  ~ Can occur later in lactation if ration does not provide adequate calcium or phosphorus.
MILK FEVER

Cause:
~ At times of low calcium demand (in mature does) there is a decrease in production of para-thyroid hormone
~ Leads to a decrease in 1,25 dihydroxycholecalciferol production.
This prevents the absorption of calcium from the gut and decreases mobilization of calcium from the bones.
The period of time between the onset of excretion of calcium into the milk and the production of the para-thyroid hormone is when the ionized calcium in the blood is depleted and milk fever occurs.

Clinical Signs:
2. Lower body temperature due to lack of activity.
3. Decreased rumen fermentation and decreased to non-existent fecal output.
4. Increased heart rate but decreased strength of contraction.
5. Muscle weakness progressing to paralysis.
6. “S” curve of head and neck.
7. PLASMA Ca.

MILK FEVER
~ “S” Curve
~ Blood Calcium Levels mg/dl
~ 7.5 Rumen Atony
~ 5.0 Muscle Weakness
~ 4.0 Paralysis

MILK FEVER TREATMENT
~ Sub-Q calcium boro-glutanate
~ IV calcium boro-glutanate 60 cc
~ IV calcium should be administered VERY SLOWLY - monitor the heart!

EFFECT OF ORAL Ca ON BLOOD Ca
~ Oral Calcium Chloride or Calcium propionate.
~ Do not overdo calcium chloride as it leads to rumen alkalosis.

EFFECT OF IV Ca ON PLASMA Ca
~ IV calcium boro-glutanate 60 cc.
~ IV calcium should be administered VERY SLOWLY – monitor the heart!
EFFECT OF SUB-Q ON PLASMA Ca
~ Sub-Q calcium boro-glutonate 60 ml / injection site (total 120 ml/dose) repeated every 2 hours until up and eating.

MILK FEVER TREATMENT
GOOD SIGNS
~ Reduced heart rate
~ Greater inotropic strength
~ Defecation
~ Muscle fasciculations
~ Lifting head and straightening neck

PREVENTION
(Mature Goats Only)
D-cad
~ Provide diet in the last 3 weeks of gestation with a low cation to anion ratio.
~ One can do this by selecting for forage with low calcium and potassium.
  Increase dietary anions
  • Ammonium chloride
  • Calcium chloride
  • Ammonium sulfate (not palatable)

NEVER feed bi-carb to dry goats
ONLY feed sodium bicarbonate to lactating goats