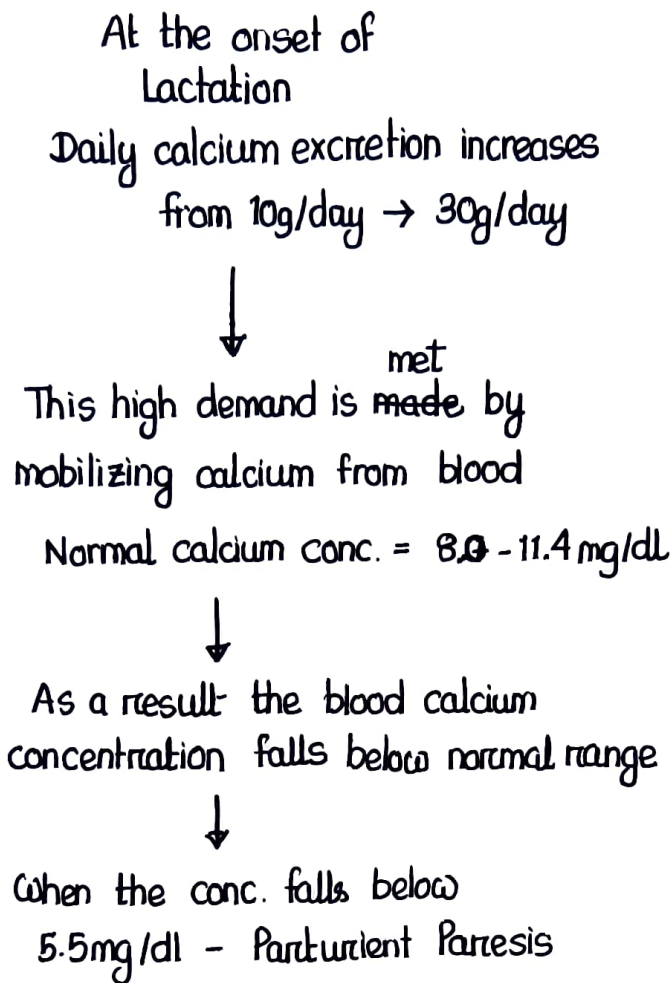


MILK FEVER
PARTURIENT PARESIS

ETIOLOGY & PATHOPHYSIOLOGY -



SYMPTOMS - Between onset of parturition & 72hrs after parturition

| <u>Stage 1</u> | <u>Stage 2</u> | <u>Stage 3</u> |
|-----------------------------------|---|---|
| ① Standing & ambulatory | ① Sternal recumbency | ① Lateral recumbency |
| ② Hypersensitivity & excitability | ② Anorexia, dry muzzle subnormal RT, cold extremities | ② Extreme muscle flaccidity. |
| ③ Mildly ataxic | ③ ↑ HR, ↓ Heart sound intensity, weak pulse | ③ Unresponsive to stimulus. |
| ④ Fine tremors - Flank & Triceps | ④ GIT smooth muscle paralysis - ↓ peristalsis | ④ Severe blood |
| ⑤ Ear twitching & Head bobbing | ⑤ Distended Bladder | ⑤ ↑ HR, pulse is undetectable. HR may reach 120 bpm. |
| ⑥ Restlessness & bellowing | ⑥ Tucking head to flank | |
| | ⑦ S - shape neck curve | |

DIFFERENTIAL DIAGNOSIS -

- ① Toxic Mastitis
- ② Toxic Metritis
- ③ Coxofemoral Luxation
- ④ Calving paralysis syndrome

TREATMENT -

Principles -

- Standing cows - Oral calcium supplementation
- Recumbent cows - IV calcium infusion
- Excessive exogenous calcium administration increases risk for hypocalcemic relapse. The lowest dose of calcium needed to restore normal blood calcium conc. should be used.

Stage 1

Oral Calcium supplementation₂

- ① Acidogenic source Block > gel/paste/
liquid
($\text{CaCl}_2/\text{CaSO}_4$)

- Enhance PTH receptor responsiveness (calcium homeostasis)
- Doesn't cause hypercalcemia
- Doesn't cause hyperglycemia
- Doesn't contribute to hypocalcemic relapse

- ② Nonacidogenic source
(Calcium propionate)

- Not preferred in stage 1
- Doesn't enhance calcium homeostasis
- Cause hyperglycemia
- Higher dose required

Stage 2 & 3

- ① Calcium gluconate (23%) IV
Standard treatment for adult cow - 500ml IV

Preferred site

- ① Jugular vein
- ② Mammary vein - avoid if possible. Prone to thrombosis & phlebitis
- ③ SC injection - multiple site avoid depositing at single site.

Slow administration (10-20min)
Monitor HR.

Transient hypercalcemia after IV administration triggers calcitonin secretion. So the animal may get recumbent again (in 12-24hr)
To prevent this oral calcium supplementation is preferred along with IV.

For calcium induced dysrhythmia
atropine sulphate can be given

Chilled/Cold Calcium gluconate
should not be administered

Cardiotoxic effect of Calcium injection
can be antagonised by administering
10% $MgSO_4$ @ 100-400ml SC

PREVENTION

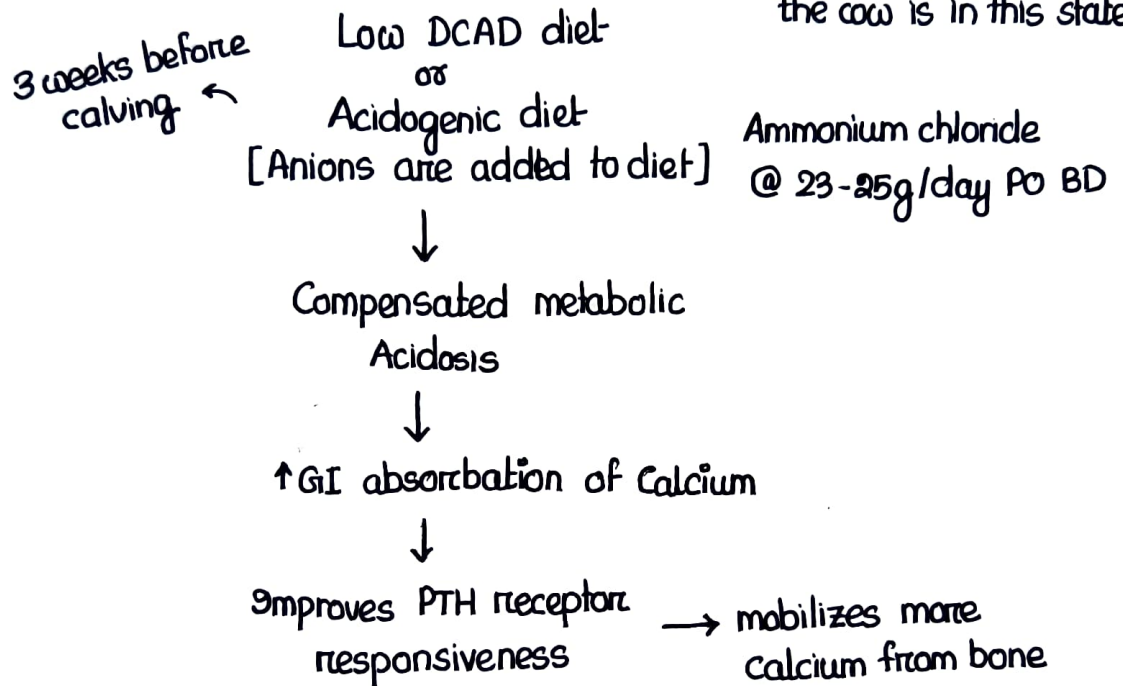
① ACIDOGENIC DIET - Most practical

Dietary Cation - Anion Difference (DCAD)

Cation - Na^+ & K^+

Anion - Cl^- & S^{2-}

High DCAD \rightarrow Alkalosis \rightarrow Not preferred (Normally the cow is in this state)



- ② Low calcium diet (<20g per day) during the dry period - not practical
- ③ Delaying milking / incomplete milking after calving - risk of mastitis
- ④ Prophylactic use of oral calcium

Most efficacious when given just before calving (this is often difficult to predict). Parturition dosing should be followed by two more doses administered 12-24hrs apart.