

Parturient paresis (Milk fever)

It is a metabolic disease in cattle, sheep and goats of adult females and occurring most commonly about the time of parturition (immediately before or after parturition) and caused by hypocalcaemia and characterized by weakness, circulatory collapse & depression of consciousness, recumbency, shock and death.

Etiology:

- 1- Hypocalcaemia occurs due to failure to mobilize Ca reserve & by depletion of these reserves usually caused by development of negative Ca balance in late pregnancy and leads to a decrease in levels of ionized Ca in tissue fluids and this occurs due to lactating.
- 2- The excessive loss of Ca in the colostrums, loss is beyond the capacity of absorption from the intestine & mobilization from the bones to replace lost Ca also the Ca lost in milk.
- 3- Other causes: which is related with parturient such as:
 - Vitamin D deficiency.
 - The effects of hormones such as (parathyroid & calcitonin).

Epidemiology:

- 1- The disease occurs sporadically in high producing cows commonly between 5-10 years of age.
- 2- Early treatment prevents the disease and also prevents the economic losses about 75-85% of cases.
- 3- Complete milking in the first 48 hours after calving and proper feeding in the last gestation period are considered predisposing factors.
- 4- Milk fever occurs at 3 main stages in the lactation cycle:
 - Pre-partum cases mostly occur in the last few days of pregnancy.
 - During parturition.
 - Post-partum within the first 48 hours or about 10 days after calving.

Clinical findings:

- 1- Stage I: (Excitement phase):
 - In this stage the cow is still standing that shows excitement, tetany with hypersensitivity and muscle tremor of the head and limbs.
 - The animal is disinclined to move.
 - May be slight shaking of the head & protrusion of the tongue and teeth grinding.
 - The rectal temperature is usually normal to slightly above.
 - Stiffness of the hind legs is apparent & the animal is ataxic and falls easily.

2- Stage II: (Prolonged sterna recumbency).

- Continuous depressed and the cow appearance in sterna recumbency .
- Extend their head & neck and protrude the tongue.
- The animal unable to stand & the muzzle is dry and the skin is cool with the rectal temperature subnormal (36-38) C°.
- The arterial pulse is weak and the venous pressure is low with ↑H.R.
- Dehydration and dry of eye (sunken eye).
- Ruminal stasis and secondary bloat are common and constipation.

3- Stage III: (Lateral recumbency).

- The cow is all ways comatose & complete flaccidity.
- In general the depression of temperature and the cardiovascular system are more marked and the heart rate increased to up 120/min.
- Bloat is usual because of lateral recumbency.

Clinical pathology:

- 1- Total serum calcium levels are reduced to the 2-5 mg/100 blood. (Normal 9-12).
- 2- Serum magnesium levels elevated usually to 4 – 5.
- 3- Serum inorganic phosphorus levels are usually depressed 3-5.
- 4- In prolonged recumbency result increase in enzymes CPK, AST, ALT.

Diagnosis:

- 1- Diagnosis of milk fever is based on the occurrence of paresis and depression of consciousness in animal following the parturition.
- 2- Confirmation of diagnosis by response to treatment with parenteral injection of Ca solution.
- 3- By biochemical examination of the blood.

Differential diagnosis:

- Hypomagnesaemia .
- Sever toxemia : acute diffuse peritonitis , coliform mastitis .
- Maternal obstetrical paralysis.
- Presentation position posture (p.p.p.).
- Downer cow syndrome.
- Ephemeral fever (three days sickness)

Treatment :

- Standard treatment :-
- Calcium boroqluconate: - in cattle (100 – 200 g, I.V. 20 – 30 %).
 - in sheep & goat (15 -20 g, I.V. + 5 – 10 g, S.c) .

- 1- Other treatment :
 - a- Udder inflation.
 - b- Administration of gel containing CaCl_2 .
 - c- Nursing procedure included:
 - Incomplete milking
 - Calf most removes from the dam.
 - Avoid drinking large quantity of water.
 - Gentle massage of muscle.

Manifestation of Response to the treatment:

- 1- Belching
- 2- Muscle tremor especially in shoulder.
- 3- Slowing and improvement in the pulse.
- 4- Increase in tensivity of heart sound.
- 5- Sweating of the muzzle.
- 6- Defecation and urination.

Failure to response to treatment: because of:

- 1- In correct or incomplete diagnosis.
- 2- In adequate treatment.
- 3- Relapse after temporary recovery.

Control :

- 1- Correction of Ca : P = 1 : 2
- 2- Calcium gel dosing :
 - 1st → 24 hr before birth
 - 2^{sd} → 1-2 hr before birth.
 - 3rd → 10 – 14 hr after birth .
- 3- Administration of vitamin D₂ orally of 20 million I U.
Daily for 5 days before calving .and parenteral of vitamin D₃ of dose 10 million I.U. by I.m.to 2-3 day prior calving.

Complication of milk fever :

- 1- Downer cow syndrome.
- 2- Inspired pneumonia.
- 3- Hypostatic pneumonia .
- 4- Metritis .
- 5- Bone fracture due to animal falling.