

Calcium deficiency

Calcium deficiency may be primary or secondary, but in both cases, the end result is an osteodystrophy,

Etiology...

A primary deficiency due to a lack of calcium in the diet whereas secondary deficiency due to a marginal calcium intake aggravated by **يشجع ب** a high phosphorus intake. moreover parathyroidectomy may also play good role in deficiency .

Epidemiology... predisposing factors

- 1- diets containing cereal or grass hays which contain little calcium and grains which have a high content of phosphorus will predispose to the disease .
- 2- Vit. D deficiency which assist in calcium absorption
- 3- exercise or temporary starvation at.
- 4- The negative balance in late pregnancy

Pathogenesis ...

The main physiological functions of calcium are the formation of bone and milk, clotting of blood and the maintenance of neuromuscular excitability.

Clinical findings...

- 1-depressed growth rate,& dental maldevelopment (with deformity of gum, poor development of the incisors,
- 2-Tetanic sings (convulsions and paresis) and hyperirritability may be more common
- 3- There is lameness, but fractures are not common even though the bones are soft
- 4- Rickets, osteomalacia, osteodystrophy fibrosa of the horse and degenerative arthropathy of cattle are the common syndromes in which secondary calcium deficiency is common .

Treatment ...

Parental administration of Ca. borogluconate

Phosphorus deficiency

Phosphorus deficiency is usually primary and is characterized by pica, poor growth,infertility and, in the later stages, osteodystrophy.Hypophosphatemia in dairy cattle is also associated with increased fragility of red blood cells and postparturient hemoglobinuria.

Etiology ...

Phosphorus deficiency is usually primary under field conditions but may be increased by a deficiency of vitamin D and by an excess of calcium.

Clinical findings ...

- 1- Young animals grow slowly and may develop rickets
- 2- In adults there is an initial subclinical stage followed by osteomalacia.
- 3- Retarded growth, decrease milk yield, and reduced fertility which may manifested by abnormal estrus and delay maturity.

Treatment..

the intravenous administration of sodium acid phosphate (30 g in 300 mL distilled water)

Manganese deficiency

A dietary deficiency of manganese (Mn) may cause infertility and skeletal deformities both congenitally and after birth

Etiology ...

1-A primary deficiency occurs endemically in some areas because of a geological deficiency in the local rock formations

2-An excess of calcium and/or phosphorus in the diet is known to increase the requirements of manganese in the diet

Epidemiology...

1-Soils containing less than 3 mg/kg of manganese are unlikely to be able to support normal fertility in cattle, There are three main soil types on which the disease occurs:

a- Soils low in manganese have low output even when pH is less than 5.5

b- Sandy soils where availability starts to fall

c-Heavy soils where availability starts to fall at pH of 7.0.

Pathogenesis ...

Manganese plays an active role in bone matrix formation, and in the synthesis of chondroitin sulfate, responsible for maintaining the rigidity of connective tissue. In manganese deficiency, these are skeletal abnormalities result. Only 1 % of manganese is absorbed from the diet and the liver removes most of it, leaving very low blood levels of the element .

Clinical findings ...

1-In cattle, the common syndromes are infertility

2-calves with congenital limb deformities, and calves which manifest poor growth, dry coat, and loss of coat color, The deformities include knuckling over at the fetlocks, enlarged joints and, possibly, twisting of the legs. The bones of affected lambs are shorter and weaker than normal and there are signs 'of jointpain, hopping gait, and reluctance to move .

Treatment ...

14 mg Mn/kg

Vit.K.deficiency

- A primary deficiency of vitamin K , is unlikely under natural conditions in domestic animals because of the high content of substances with vitamin K.activity in most plants and the substantial synthesis of these substances by microbial activity in the alimentary canal.
- Sporadic cases may occur when impairment of the flow of bile reduces the digestion and absorption of this vitamin .
- The most important therapeutic use of vitamin K in domestic animals is in sweet clover poisoning where toxic quantities of coumarin severely depress the pro thrombin levels of the blood and interfere with its clotting mechanism.

Thiamin deficiency (Hypothiaminosis)

The disease caused by deficiency of thiamin in tissues is characterized chiefly by nervous signs

Etiology

Thiamin deficiency may be primary, due to deficiency of the vitamin in the diet, or secondary, because of destruction of the vitamin in the diet by thiaminase.

*raw fish diet & ingestion of excessive quantities of bracken fern & horsetail plants causes nervous signs because of the high concentration of thiaminase in these plants

Pathogenesis ...

The only known function of thiamin is its activity as a co carboxylase in the metabolism of fats, carbohydrates and proteins and a deficiency of the vitamin leads to the accumulation of endogenous pyruvates

Clinical findings...

In lambs...

Somnolence, anorexia, and loss of condition occur first, followed by tetanic convulsions,

In horses ..

Bradycardia with dropped heart beats, ataxia, muscle fasciculation and periodic hypothermia of hooves, ears, and muzzle were the common signs, with blindness, diarrhea, and loss of body weight

Treatment...

5 mg/kg BW of thiamine given within 3 h , The initial dose is usually given IV followed by 1M injections for 2-4 days

Riboflavin deficiency

riboflavin is essential for cellular oxidative processes in all animals, the occurrence of deficiency under natural conditions is rare in domestic animals because actively growing green plants and animal protein are good sources and some synthesis by alimentary tract microflora occurs in all species.

Clinical signs ...

anorexia, poor growth scours, excessive salivation and lacrimation, and alopecia occur. Areas of hyperemia develop at the oral commissures, on the edges of the lips, and around the navel. There are no ocular lesions.