

HAEMOLYTIC DISEASE IN NEWBORN FOALS

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Blood-typing of mares and stallions to confirm parentage offers owners an early warning system for detection of foals at risk from potentially fatal jaundice. Jaundice or haemolytic disease occurs naturally only in humans and horses and is due to the mare and stallion having different blood groups. It is commonly associated with the blood types Aa-negative and Qa-negative. Most stallions are Qa-positive and if the mare is Qa-negative or Aa-negative, she produces antibodies to the Qa-positive red cells. The antibodies attach to the foal's red blood cells. The antibodies flag the red cells for destruction and removal from the circulation.



**NORMAL FOAL
RED BLOOD
CELLS
(Pre suck)**

**MARES
COLOSTRUM**

NO REACTION



**HAEMOLYTIC
FOAL
RED BLOOD
CELLS
(Pre-suck)**

**MARES
COLOSTRUM**

**ANTIBODIES ATTACH
TO FOAL RED BLOOD
CELLS MARKING THEM
THEM FOR REMOVAL**

In the horse, antibodies cannot cross the placenta. The foal is safe from the antibodies until it is born. Human babies, on the other hand become affected before they are born, because in people, antibodies cross the placenta and pass into the baby, causing destruction of the red cells.

Ordinarily, it is critical for foals to receive colostrum, to load up with antibodies to protect them for 3 to 4 months until they are old enough to produce their own. However, if the mare is a different blood group to the foal, the colostrum becomes a lethal cocktail. Anti-red cell antibodies concentrate in the colostrum and when the foal begins to nurse, the antibodies enter the foal's circulation and attach to the red blood cells. Then begins is a continuing process of red blood cell destruction causing profound anaemia, jaundice, weakness and death.

Diseases and conditions that affect newborn foals are grouped into various categories, but the clinical signs are often the same and anything outside 'normal' is a cause for closer observation and prompt veterinary advice. Newborn foals should be closely observed for the first few days and any subtle changes in behaviour must be investigated promptly. Some foals may be 'normal' at birth but close observation will reveal slight changes which are not specific for any particular disease or infection, but

that indicate a need for veterinary examination. A characteristic of most diseases is sleepiness and lethargy. All foals sleep most of the time, so it is important to note any foals that seem unusually sleepy.

Some foals fall asleep while standing and may fall down if they go into a deep sleep. The complicated manoeuvring of legs required to lie down is usually achieved after the first feed and within 3 hours of birth foals usually sleep for 7 to 10 minutes, before standing and nursing again. Bouncy little play movements begin around 2 hours and most have organised their legs sufficiently to be able canter and gallop by 6 hours of age. By the end of the first day the normal foal will be nibbling grass, galloping and grooming itself; licking and chewing fences, tails, trees, buckets and bins and passing urine and manure. Between 1.5 and 2 minutes is spent suckling, which takes place up to 24 times a day. Normal sleep periods range from 15 to 30 minutes and occur 20 to 25 times a day. If the foal appears drowsy, excessively sleepy or is not feeding vigorously then a veterinary clinical assessment is indicated.

Any foal that goes off suck, lies around more than would be expected, becomes sleepy, has signs of colic or yellowing of the gums, must be treated urgently. Even the strongest foal will quickly deteriorate if its red blood cells are being destroyed. Foals are normal at birth and show normal behaviour until the destruction of red blood cells causes anaemia as soon as 6 hours after suckling. Affected foals then become lethargic and may yawn a lot. If they are exerted or excited, their respiratory rates and heart rates increase markedly and a pulse may be seen travelling in waves up the neck. The eyes and gums may be jaundiced and the urine discoloured red. Signs may appear on the first, but usually on the second day after birth. However, each case is different and if severe the foal may be found collapsed.

Whether a foal is at risk can be determined with reasonable accuracy if the blood type of the mare is known. Some studs identify high risk mares on blood type – those that are Aa- or Qa negative can be monitored during the last 2 – 3 weeks of pregnancy. The disease can then be prevented by muzzling the foal for the first 24 - 36 hours after birth so that it cannot ingest colostrum from the mare. Donor colostrum from a non-sensitised mare must be given to provide immunity. The colostrum from the dam is regularly milked for 36 hours and discarded. The ability of antibodies to be absorbed through the lining of the gut is limited to the first 24 – 36 hours after birth and ingestion of antibody after this time cannot cause the condition, so the foal can suckle normally after the danger period.

Prevention is much less taxing than treatment. Effective prevention requires knowledge of the mare's blood type. Dr Kevin Bell at the University of Queensland Australian Equine Blood Typing Research Laboratory, has been working in this area for many years. By determining the blood type of the mare and testing her blood in late gestation, the laboratory can provide concerned owners with the information necessary to prevent the development of the disease in foals at risk. The disease is rare in maiden mares because they have not been exposed previously and have not mounted a strong immune response to other blood types. In the next 12 months, parentage testing will be done using DNA analysis instead of blood typing. DNA analysis will not provide information on blood type and it will not be possible to identify high risk mares from the test. However, equine veterinarians will be able to advise on other testing procedures.

Treatment is based on veterinary examination, laboratory tests and supportive measures, such as transfusions. Do not be tempted to administer or provide any form

of iron supplements to the foal – both oral and injectable preparations have been linked to death in young foals. The provision of a balanced diet high in minerals to late pregnant mare is the safest and most effective method of ensuring the foal has sufficient body reserves of the trace elements such as iron and copper, minerals and vitamins necessary for red blood cell production. No amount of supplementation of the mare or the foal after birth can correct for deficiencies in the last 3 months of pregnancy.

There is nothing quite as enchanting as the newborn of any species (except perhaps mice and insects), but newborn foals have an abundance of that special quality. It is possible to spend many hours watching them explore their new world and practice using their legs in the correct arrangement to achieve graceful, effortless movement. Although some may judge ‘foal-watching’ to be a waste of time, this pleasant pastime offers benefits both to the observer and to the foal. The early detection of abnormal behaviour allows rapid intervention and can reduce both the risks and the severity of neonatal diseases. Correct nutritional management of the pregnant mare increases the resilience of the newborn foal and reduces the risks of leg, bone and joint problems. Specially formulated feeds such as Mitavite Promita and Mitavite Breeda have been balanced to meet the nutritional requirements of the late pregnant mare without the risks of overfeeding. Minerals such as iron and copper are provided as chelated mineral proteinates. This increases absorption by over 300% compared to inorganic forms of minerals, ensuring that the unborn foal can build reserves of essential minerals to support bone development and red cell production in the bone marrow. For more information on feeding horses or Mitavite feeds toll free on 1800 025487 or email: mitaviteenquiries@ingham.com.au website: www.mitavite.com.au