

Neonatal Isoerythrolysis in the Foal
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Neonatal Isoerythrolysis (NI) is a disease of young foals between one and 7 days of age, characterized by depression, failure to nurse, icterus, anemia and occasionally rapid death. The disease is caused by the destruction of the foals red blood cells by antibody complexes present in the colostrum of its dam. NI is an uncommon disease, with a prevalence of 1-2%, but has been reported at higher frequency in some breeds. The disease is an acquired form of immune-mediated hemolytic anemia, resulting from a blood-type incompatibility of the mare and her foal. This does not affect the foal during pregnancy because no blood or antibodies are able to cross the equine placenta; therefore the foals are born normal. However at birth the foal ingests large numbers of antibodies in the colostrum, causing clumping and destruction of the foal's red blood cells.

Treatment of NI depends on rapid identification of sick foals and separation of the foal from its dam to prevent suckling for 48-72 hours, until the mare no longer produces colostrum and the foal's GI tract is closed. Foals need alternative sources of nutrition, such as milk replacer, or milk from another mare. Since the foals are compromised they should also be given a broad-spectrum antibiotic and may benefit from additional supportive care, such as IV fluids, oxygen or corticosteroids. Foals with a very low number of red blood cells (PCV) may require transfusion of washed red blood cells from the dam or another horse cross-matched to the mare. These cells would not be destroyed by the antibodies ingested in the mare's colostrum.

Although the disease can have devastating effects, it is fairly preventable by identifying those mares which are predisposed to causing red-blood cell destruction in foals. One way to achieve this is to blood-type mares before the first breeding. Mares which are negative for blood antigens known to cause disease (primarily Aa, Qa, Qc and Ua) can then be matched to stallions which are also negative. In rare cases, blood-typing will not successfully identify mares that have hemolytic antibodies. This was first reported in the Friesian breed in 2007. Alternatively, mares with an unknown blood-type can be tested for the presence of antibodies shortly before the expected due-date. The blood-test must be performed within 2-3 weeks of foaling to be sensitive and must be repeated during each pregnancy. Even at foaling, a test can be performed using the foals blood and mares colostrum. This is called a 'jaundiced foal agglutination test'. Ideally, it should be performed before the foal has suckled and ingested colostrum (before it is jaundiced). If the mare's colostrum results in destruction of the foal's red blood cells, the foal can be separated from the mare or muzzled to prevent suckling and can be offered colostrum or plasma from a different source to ensure adequate passive transfer of immunity. After 36-72 hours, the foal can begin nursing milk normally.