

FACTS ABOUT FPT IN FOALS

Comments on Failure of Passive Transfer (FPT) of Colostral Immunoglobulins in Foals

The placenta of the mare does not allow transfer of maternal immunoglobulins to the foal prior to birth. Therefore, transfer occurs via the colostrum within 24 hours after parturition. The importance of adequate colostrum immunoglobulin transfer has been verified by numerous studies. Foals with FPT are likely to develop clinical infections involving the lungs, joints, and intestine, and deaths in untreated foals are common.

FPT is not a genetic disorder. It occurs in all breeds of horses. Even well-managed brood farms can have FPT (less than 200 mg IgG/100 ml of serum) or PFPT (200-400 mg IgG/100 ml of serum) in 20-25% of their foals due to factors largely beyond their control. Up to 75% of foals with FPT and 25% of foals with PFPT develop infectious diseases and nearly all foals dying of infectious disease have less than 400 mg IgG/100 ml of serum.

Passive administration of antibody to a foal with FPT will significantly reduce infections. Antibody is given to foals by intravenous plasma transfusion using the following procedures. The plasma donor should be member of the local band so that the plasma will be more likely to contain antibodies against indigenous pathogens. Selection of a gelding or stallion as the donor minimizes the chances of neonatal isoerythrolysis induced by antibody in the donor plasma against the foal's RBCs. The ideal plasma donor is the foal's sire, especially if there are no plans to breed the foal with the sire. If there is a reason to suspect isoerythrolysis, the foal's RBCs should be matched with the potential donor's plasma using a lytic test for anti-RBC antibody. Occasional reactions are encountered using plasma from horses which have never been sensitized by transfusion or pregnancy, due to "natural" antibodies. They are not usually fatal. The only way to ensure against this problem is to select a donor to be used over a period of time and have his serum tested for anti-RBC antibody (Serology Laboratory, College of Veterinary Medicine, University of California, Davis, CA).

Donor blood is collected aseptically in sterile bottles using heparin or sodium citrate as anticoagulant. The erythrocytes are allowed to settle for one hour, the plasma collected, and administered intravenously. Avoidance of bacterial contamination is important. It is preferable not to administer whole blood, as the donor erythrocytes are not needed and represent an added load to be removed by the foal's reticuloendothelial system.

The next decision is how much plasma to give to a foal with passive transfer failure. The minimum level of maternal immunoglobulin found necessary to prevent infection of the foal in previous studies (400 mg IgG/100

ml) is an average figure, that may or may not be applicable in other situations. First, what is important is not the total immunoglobulin level, but the amount of specific antibody against the pathogens the neonate faces. This is determined by the titer of that particular antibody in the donor's serum. The conditions under which the foal is housed and handled, the number of animals with which it comes in contact, and the vigor of its other host defense systems also affect how much antibody is needed to help it prevent invasion by organisms from its environment. A general rule to follow is 20 ml donor plasma/kg body weight. For a typical 50 kg foal, at least 1 liter of plasma will be needed.

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VMRD, Inc.

PO Box 502
Pullman, WA 99163
USA

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