FOLATE STATUS AND SUPPLEMENTATION IN THE HORSE

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(ABSTRACT)

A series of studies were conducted to evaluate effects of lactation, exercise, and anti-folate drugs on folate status in the horse, and the bioavailability of supplement and feed folate in the horse. In the first study, mares and foals had adequate plasma folate, RBC folate, and plasma homocysteine concentrations during 6 mo of lactation and growth. Therefore, mares and foals maintained on quality grass/legume pastures and offered a pasture supplement did not require additional folate supplementation to maintain folate status during lactation and growth. In the second study, 25 mg of oral folic acid (FA) supplemented 5 times/wk to 11 mature horses engaged in routine submaximal exercise did not improve folate status, submaximal athletic performance, or combat the increase in oxidative stress during the 12 wk supplementation period compared to 11 horses not given supplemental folate. The common practice of supplementing horses with oral FA in vitamin supplements appears to be of little benefit to horses engaged in routine submaximal exercise. In the third study, daily oral administration of pyrimethamine (PYR) and sulfadiazine (SDZ) for 9 wk followed by 6 wk of coadministration of either Peptidoglycan or FA was associated with a decline in folate status resulting in moderate hyperhomocysteinemia, but not clinical signs of anemia. Peptidoglycan as a source of formylated folate and FA were not effective in improving folate status in horses coadministered PYR and SDZ, two anti-folate drugs commonly administered in equine veterinary practice. The last study assessed the bioavailability of oral and i.v. 5-methyltetrahydrofolate (5-mTHF), 5-formyltetrahydrofolate (5-fTHF), or FA, and the bioavailability of folate from concentrates fed to horses. The minimum efficiency of absorption for supplemental FA was 11 %. The low bioavailability of FA indicates a need for further research on the potential benefits of alternative sources of folate, including 5-fTHF, on increasing folate status in the horse.

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