Measurement and Correlation of Serum and Fecal Immunoglobulin A in Quarter Horse Mares

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Immunoglobulin A (IgA) has been detected in serum and fecal samples of several species including dogs, reindeer, and rats. To our knowledge, IgA has been evaluated in serum samples of horses, but it has not been measured in their fecal samples. The use of fecal samples to measure immunoglobulin concentrations would be a less stressful, non-invasive method to study immune responses in horses. In this study, sixteen Quarter Horse mares (10.6 ± 5.0 yr) were used to determine the correlation of IgA concentrations in serum and fecal samples. All horses received 0.5% BW of a 12 or 16% CP pelleted concentrate with mixed grass hay and water ad libitum and were housed in outdoor paddocks with access to shelter at all times. Mares were vaccinated against tetanus toxoid to elicit an immune response and blood samples were taken via jugular venipuncture immediately prior to vaccination (d 0) and on d 7, 14, 21 and 28 post-vaccination and evaluated for IgA concentrations by a commercial ELISA validated for use in horses. Fecal samples were collected weekly and extracted via a previously published protocol. IgA concentrations in extracted fecal samples were evaluated using the same ELISA. Data were analyzed using the PROC CORR in SAS and a p-value of ≤ 0.05 was considered statistically significant. IgA was detected in both serum and fecal samples; however, fecal IgA concentrations were lower than those found in serum. No correlation was observed between serum IgA and fecal IgA concentrations (R = -0.06519, P = 0.5864). According to this study, the use of fecal IgA measurements is not an accurate method to predict serum IgA concentrations in Quarter Horse mares.