Interpretation of serum antibody response to Anoplocephala perfoliata in relation to parasite burden and faecal egg count - DTU Orbit (11/12/2018)

Interpretation of serum antibody response to Anoplocephala perfoliata in relation to parasite burden and faecal egg count

Reasons for performing study: Increased knowledge is needed to assist in the interpretation of presently available diagnostic techniques for infection by the tapeworm Anoplocephala perfoliata in horses. Hypothesis: The suggested cut-off level of an A. perfoliata specific ELISA may not adequately reflect the actual infection level. Hence, faecal egg counts may be a more useful diagnostic test for individual horses than previously reported. Methods: Eighty-four horses admitted for slaughter at a Danish abattoir were examined for the presence of A. perfoliata. The number of tapeworms, their stage of development and gross pathological mucosal lesions were recorded and compared with serum antibody responses and faecal egg counts. Faecal egg counts were determined in samples from A. perfoliata infected horses using a semi-quantitative centrifugation/flotation technique. Blood samples collected at slaughter were analysed by ELISA to determine serum antibody levels against A. perfoliata 12/13 kDa excretory/secretory antigens. Results: Macroscopically visible tapeworms were detected in 24 (29%) of the horses. The overall sensitivity of the faecal egg count was found to be 0.46; however, if the detection limit was increased to above 20 tapeworms, sensitivity increased to 0.89. There was a correlation of 0.71 between worm burden and egg count. The antibody levels correlated significantly with infection intensity despite a wide variation among horses with similar levels of infection. The optimal cut-off value was determined using receiver operating characteristic analysis. If cut-off was chosen at optical density (OD) = 0.7, sensitivity was 0.68 and specificity 0.71. Conclusions: Both diagnostic methods were capable of revealing potentially pathogenic infections, with the faecal egg count being more applicable on the individual horse level. Potential relevance: In the population of Danish horses investigated the serum ELISA test should be interpreted such that horses in need of anti-Anoplocephala treatment have an OD = 0.7 or above.

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