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A NEW ASSAY FOR FELINE α_1-ACID GLYCOPROTEIN

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Introduction

Feline infectious peritonitis (FIP) is the leading infectious cause of cat death, currently diagnosed using a panel of tests, including measurement of acute phase proteins. Alpha-1-acid glycoprotein (AGP) is an acute phase protein in cats and is elevated in FIP. AGP levels in peritoneal fluid or serum are routinely measured using a single radial immunodiffusion test (RID). Immunoturbidimetric assays are more precise, rapid and efficient and would allow AGP to be included in the panel of tests currently measured on biochemical analysers. The objective of this study was to develop an immunoturbidimetric assay to measure AGP and to compare the results with those obtained from RID.

Materials and Methods

AGP was purified from a pool of peritoneal fluid, with an elevated concentration of AGP, obtained from cats diagnosed with FIP. Antisera to AGP was raised and a method was then developed on the COBAS MIRA (ABX Diagnostics) analyser. The AGP concentration in a pool of peritoneal fluid was established and this was used as a standard curve to develop the immunoturbidimetric assay. Samples of serum or peritoneal fluid were obtained from approximately 170 cats, the AGP concentration measured using the developed immunoturbidimetric assay and compared to the concentration measured by RID.

Results

The concentration of AGP in the pool of peritoneal fluid was measured as 3.65g/L, which was diluted to give a standard curve ranging from 0-1g/L AGP. Samples were applied at a range of dilutions. Purified AGP, at known concentrations, were also added as QC controls. This study shows that there is good correlation, in peritoneal fluid ($r^2 = 0.91$; $p<0.001$)) and in serum ($r^2 = 0.92$; $p<0.001$), between results obtained using the RID and results obtained using the immunoturbidimetric assay.

Conclusion

A rapid immunoturbidimetric assay for measurement of feline AGP in peritoneal fluid or serum has been developed, which will be of value in diagnosis of FIP.