Can alkaline phosphatase predict clinical control by trilostane of canine hyperadrenocorticism?

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BACKGROUND

Alkaline phosphatase concentrations are increased in most cases of hyperadrenocorticism and remain increased despite trilostane treatment. Previously there have been no correlations found between alkaline phosphatase concentrations and post ACTH cortisol concentrations. Recent research however has shown that post ACTH cortisol concentrations are a poor measure, and pre-trilostane cortisol concentrations a better measure, of clinical control as assessed by an owner questionnaire.

OBJECTIVE

To assess the correlation between serum alkaline phosphatase concentrations with pre-trilostane and the responses of owners to a validated questionnaire. Post trilostane cortisol concentrations (which are known to be poorly predictive of clinical control) were also compared as a negative control.

METHODS

Two serum samples were obtained from each of 64 dogs being treated for hyperadrenocorticism using trilostane. The first serum sample was taken after admission (pre-trilostane). The trilostane dose was then administered, along with the dog's normal morning meal. A second serum sample was taken 3 hours later (post-trilostane). Cortisol concentration was measured concurrently on both serum samples using a competitive chemiluminescent enzyme immunoassay (Immulite®, Siemens). Alkaline phosphatase was measured in one of each group of samples using a validated in house analyser (Catalyst®; Idexx Laboratories). At the time of sampling each owner completed a previously validated questionnaire to assess the clinical control of the hyperadrenocorticism using nine questions. Each dog was then placed in a group according to its clinical control (excellent, moderate, poor). Dogs that were unwell for any reason were excluded from this study.

RESULTS

The correlation coefficient between the ALP activity and the owner score ($r = -0.183$), pre trilostane cortisol ($r = 0$) and post-trilostane cortisol concentrations ($r = -0.04$) indicated that there was no linear relationship with any of these 3 measures of control of hyperadrenocorticism.

CONCLUSIONS

The very poor correlation between serum alkaline phosphatase concentration and both the pre-trilostane cortisol concentration and the owners scores exclude it as an accurate or reliable parameter to monitor the treatment of hyperadrenocorticism.