Identifying equine metabolic syndrome in New Zealand

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Introduction

Equine Metabolic Syndrome (EMS) is a common condition of insulin dysregulation manifesting in several clinical signs including laminitis. Early diagnosis allows for management modifications to prevent serious acute and chronic laminitic changes. A single blood insulin may, if elevated, indicate EMS but a normal insulin does not rule it out. The gold standard, dynamic, I/V combined glucose and insulin test (CGIT) is labour-intensive and costly. A simpler dynamic test is the in-feed oral glucose challenge assessing the insulin response to a glucose meal. Reference ranges for this test have not been determined for New Zealand horses. This study aimed to determine the insulin response to a glucose meal for normal horses and horses with EMS to determine a cut-off for assisting in diagnosis of EMS in New Zealand.

Methods

Ten suspect EMS cases and 10 control cases were tested at home in familiar surroundings. Blood insulin and glucose were measured after an overnight fast. Dextrose powder (0.5 g/kg bodyweight) was fed in a small amount of low-glycaemic feed (e.g. chaff). Blood samples were harvested two hours after feeding to determine insulin and glucose concentrations. Insulin was measured using the Immulite assay.

Results

Blood insulin post-challenge differed significantly between subjects and controls ($p=0.0003$). The cut-off for the upper reference range for a normal blood insulin post-challenge was calculated to be 35 mIU/L.

Conclusions

Determining the normal upper reference range of insulin will assist New Zealand veterinarians to diagnose EMS in the field. The results differed to a United Kingdom study which determined results >68 mIU/L to be indicative of insulin dysregulation. The difference may be in part due to management factors, particularly the pasture-based systems predominant in New Zealand.

References

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