



VIRAL DISEASES

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EVALUATION OF SERUM VITAMIN B₉ AND B₁₂ CONCENTRATIONS IN PIGS INFECTED WITH PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS

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Introduction

Vitamin (Vit.) B₉ and B₁₂ are essential components for genomic stability. Serum concentrations of both vitamins are altered in human patients with viral infections. Decreased Vit.B₁₂ concentrations have been described in patients with enveloped RNA virus infections, an investigation in pigs infected with a DNA virus (porcine circovirus type 2) showed no effect on serum Vit.B₉ or B₁₂ concentrations (unpublished data). No published data are available on the vitamin B status in pigs infected with an RNA virus. We aimed to evaluate serum Vit.B₉ and B₁₂ concentrations in pigs infected with porcine reproductive and respiratory syndrome virus (PRRSV), an enveloped RNA virus.

Material & Methods

Serum samples from pigs (n=9) were used as part of an unrelated study. Pigs were infected with PRRSV strains (VR2385 [n=4] and NC16845 [n=5]) and serum samples were collected prior to the PRRSV strain inoculation and on day 3, 6, and 9 post-inoculation. Concentrations of serum Vit.B₉ and B₁₂ were measured using immunoassays validated for pigs. An ANOVA and RM-ANOVA were used to compare serum Vit.B₉ and B₁₂ concentrations in pigs prior to and 3, 6, and 9 days after inoculation with PRRSV.

Results

Serum Vit.B₉ concentrations increased from prior (medians: 92.8 µg/L) to days 3 (128.0 µg/L), 6 (175.2 µg/L) and 9 (185.6 µg/L; p=0.0044), whereas Vit.B₁₂ concentrations decreased from prior (medians: 196 ng/L) to days 3 (188 ng/L), 6 (184 ng/L), and 9 (158 ng/L; p=0.0092). Repeated measures analysis confirmed those increases and decreases for serum Vit.B₉ (p=0.0018) and B₁₂ (p=0.0001) concentrations, respectively. No difference was observed between the two PRRSV strains for either vitamin (p>0.05).

Discussion & Conclusion

Pigs with an enveloped RNA virus infection showed decreases of Vit.B₁₂ concentrations similar to humans. However, larger studies are warranted to confirm differences in Vit.B₉ and B₁₂ concentrations in pigs with PRRSV infection.