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SWEDISH-NORWEGIAN FOUNDATION FOR EQUINE RESEARCH

Canagliflozin: Dose-Response of Urinary Glucose Concentration in Healthy Horses

CONCLUSION

Canagliflozin (CFZ) induced glucosuria in all horses after a single dose. Urinary glucose excretion is likely to persist for several days after CFZ treatment is discontinued.

METHODS

Nine healthy Standardbred mares received a single oral dose of CFZ (mean 0.82 mg/kg, range 0.59-1.11 mg/kg), to approximate plasma concentrations from a typical 0.3-0.6 mg/kg daily dosing regimen. Urine was collected pre-treatment and every 24 hours post-treatment for 7 days.

Urinary glucose was analyzed using an automatic biochemistry analyzer, DxC 700AU (Beckman Coulter).

Statistical Analysis

The effect of CFZ dose on urinary glucose concentrations across different days was assessed using a Linear Mixed-Effects Model, incorporating temporal correlation and day-specific variance.

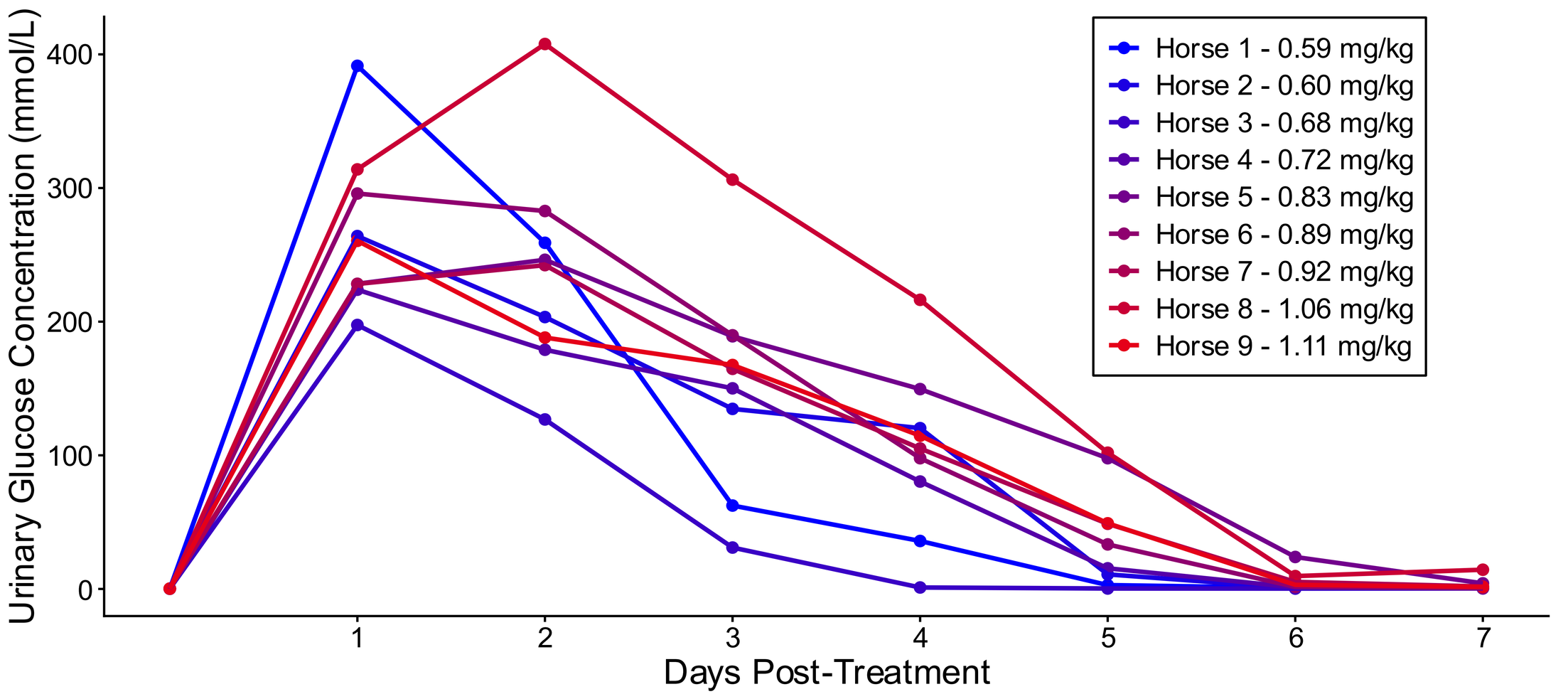
Simple Linear Regression assessed the relationship between AUC urinary glucose and CFZ dose.

RESULTS

Dose effect on urinary glucose concentration was significant only on Days 2 and 3 ($p < 0.05$), with no statistically significant effect on Days 1, 4, 5, 6 and 7.

There was a significant positive correlation between the AUC for urinary glucose concentration over time and the administered CFZ dose ($R^2=0.35$, $P < 0.05$).

Quantification of plasma CFZ concentrations for pharmacokinetic-pharmacodynamic modeling is pending.



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