

ABSTRACT

PLASMA FRUCTOSE, GLUCOSE, INSULIN, AND IMMUNOGLOBULIN G CONCENTRATIONS IN THE 24 HOURS IMMEDIATELY FOLLOWING PARTURITION WHEN FRUCTOSE IS USED AS AN ENERGY SUPPLEMENT FOR NEONATAL FOALS

Ten foals born at the California State University, Fresno Quarter Horse Unit were evaluated for plasma glucose, fructose, insulin, and IgG concentrations in the first 24 h following parturition when five of the foals were given 40g of fructose orally (30 min after parturition) while the other five (control) foals received no supplement. Blood samples were drawn at the following intervals: initial (30 min after parturition), +1, +2, +4, +6, +12, and +24 h. Heart rates and rectal temperatures of the foals were also measured at the same times. Neonatal foals were found to have low glucose concentrations at birth that increased over 24 h. Foals were found to have high initial fructose concentrations that declined over 24 h in the control foals but maintained near initial concentrations in foals dosed with 40g of fructose. Early postpartum feeding of fructose suppressed plasma glucose relative to control foals and also seemed to increase immunoglobulin G concentrations. The trends in glucose and fructose changes over time were negatively correlated. This negative correlation of glucose and fructose is similar to what has been reported in other species. Heart rates decreased significantly by 2 h and rectal temperatures were not affected by treatment.

Kathleen M. Bell
August 2009