Harms and Benefits of Oral Sucrose To Reduce Adverse Events, Pain and Distress During Veterinary Needle Prick Procedures in Domestic Rabbits: Random Control Trial

Smith, Caleb (School: Southwest Metro High School)

Adapting the evidence-based medical practice of giving oral sucrose to human infants before painful procedures, during the 2020-21 foreign animal disease outbreak of RHDV2 (Rabbit Hemorrhagic Disease), 850 rabbits attending emergency mass vaccination clinics were enrolled in a random-control double-blind study to test if oral sucrose interventions before needle prick decreases pain/distress and decreases subsequent Adverse Events in rabbits. Beginning at enrollment, Adverse Events were tracked using Owner-Reported Outcome Measure (OROM) surveys, administered at baseline then three weeks after each dose. Veterinarians followed precise protocols for wellness screening, vaccination, and microchipping, comparing each rabbit's pain/distress scores to its baseline using validated behavior and grimace scales. Staff videotaped 1/4 of the procedures for independent confirmation. Two minutes before vaccine procedures for dose 2, rabbits received 1ml water, or 1 ml or .5 ml of 25% oral sucrose solution. No serious Adverse Events were attributed to interventions. One-way ANOVA revealed statistically significant differences for pain/distress scores at $F(3,19)=5.54$, $p<.05$ and for incidence AE's at $F(3,39) = 5.17$, $p<.05$. Post hoc Tukey's HSD Test revealed significant differences ($p<.05$): rabbits receiving 1 ml sucrose were associated with less pain/distress and fewer Adverse Events compared to control and 1 ml water. Positive results across breeds, sex and ages suggests generalizable administration of oral sucrose for safer and more-humane veterinary care, especially needed during continued national RHDV2 emergency vaccination of wild and domestic rabbits. Future crossover studies should consider stratifying males, dwarf breeds, elder rabbits which demonstrated higher risk-ratios.

Awards Won:
Third Award of $1,000