VETERINARY EMERGENCY CLINIC

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HEAT STROKE IN PETS

Now that our cool rainy spring has finally given way to summer's heat, the VEC is starting to see cases of heatstroke. Physiological adaptation allowing greater tolerance to heat is called acclimatization. This occurs partially over 10-20 days but might require up to 60 days to be complete. Dogs exposed to heat in the spring have not yet acclimatized to hot summer weather, and are more at risk than later in the season. Dogs have significant and unpredictable variation in tolerance to heat stress, likely relating to genotype. Golden Retrievers, Labrador Retrievers and Belgian Malinois are overrepresented in presentation for heat stroke. We have often been surprised by how minor heat exposure wreaks devastating damage in one patient, while another patient who presents with extremely high body temperature recovers uneventfully. Older dogs, like older people, do not tolerate heat as well as younger animals. Bulldogs, pugs and other brachycephalic breeds are at particular risk for heatstroke; panting for them generates more heat than it dissipates.

This is a good time to remind clients to avoid leaving pets (or children!) in vehicles for any period of time. Many people are unaware of just how quickly (i.e. 3-4 minutes) a car can heat up to intolerable temperatures; even if the windows are cracked open. More insidious cases of heat stroke occur with the dog that is exercising in the heat of the day. They are actively generating their own metabolic heat, and the hot environment makes it difficult for them to cool down effectively. Owners may believe their pet would stop and rest if overheated, but our experience is that many play-obsessed dogs or driven working dogs do not voluntarily quit when overheated, requiring owners to be savvy enough to stop activity before heat stroke sets in. In some unlucky susceptible pets, what seems like minimal vigorous exercise in hot conditions can trigger heat stroke.

Early signs of heat stroke in dogs are lethargy, persistent panting, ataxic gait, inappetance, vomiting or diarrhea after exercise and/or heat exposure. This may quickly progress to seizuring, hemorrhagic diarrhea, petechial hemorrhages, neurologic signs, or signs of hyperdynamic or hypodynamic shock. Once heat stroke has occurred, the systemic inflammatory response is triggered, often leading to renal failure, ARDS, DIC, rhabdomyolysis, hepatic failure, pancreatitis, coagulation abnormalities, intestinal hemorrhage and sometime death. Predicting survival is difficult. Risk factors for death are pre-existing obesity, seizures on presentation, and hypoglycemia refractory to treatment. A recent study noted that the presence of more than 18 nRBC/100 WBCs on presentation was 91% sensitive and 88% specific for a fatal outcome.

Fortunately, client education can go a long way in avoiding heat stroke. Remind clients to avoid leaving pets in cars in the summer, provide access to cool shade and lots of water for outdoor dogs, and avoid heavy exercise in the heat of the day. If exercising a dog on a hot day, keep times short, provide frequent stops with water to drink, and provide a swimming or hosing area to cool the dog. Remember that dogs don't always know when to stop: make sure their owners do.

WISHING YOU A SAFE AND HAPPY SUMMER!