An ultrasound-guided technique to achieve jugular vein catheterization in a cardiac arrest dog model was evaluated. Obtaining vascular access in an emergency situation is critical. However, access in hypotensive or hypovolemic patients can be challenging, and unsuccessful attempts often produce hematomas. Studies of ultrasound-guided vascular access in humans have realized a higher success rate and fewer complications.

Cardiac arrest was induced in 9 walker hounds. One of 3 randomly assigned operators attempted to place a jugular catheter with ultrasound guidance; 27 attempts were made. Simulated hematomas were created in 9 patients by injecting 5–15 mL of blood in SC tissue around the vein. Alcohol was applied to all catheterization sites and proved sufficient for obtaining an ultrasound image. Mean time to vascular access without a hematoma was 1.9 minutes and 4.3 minutes with a hematoma. Perceived difficulty in placing the jugular catheter was the same; however, individuals did perceive the initial catheterization attempts to be more difficult. This learning curve was shallow, thus showing that individuals can easily learn the ultrasound-guided technique. Keeping the vessel and catheter tip in the same plane as the ultrasound probe was important. The authors concluded that further studies are required to evaluate the ultrasound-guided technique.

Commentary

Ultrasonography has become popular in emergency and critical care as a diagnostic tool for identifying and sampling cavitary fluid/air accumulation and anatomic organ changes in the critically ill and injured patient and as an instrument to facilitate nonsurgical, interventional techniques (eg, obtaining vascular access, administering nerve blocks). This study suggested that using ultrasonography to guide jugular vein catheterization may reduce failure rates when percutaneously obtaining IV access. For veterinarians who use ultrasonography regularly, the technique can be practiced on recently deceased patients, thus potentially improving its implementation on live patients. This technique may be useful for veterinary technicians who work in states that do not permit them to perform surgical cut-down procedures for vascular access.—Elke Rudloff, DVM, DACVECC

Source


Dental Disease in Rabbits

Practitioners need a complete understanding of the etiology and pathophysiology of dental disease to formulate therapy or potentially prevent this common disorder in pet rabbits. This article is a literature review and thorough summary of calcium homeostasis in the rabbit, attempting to unite current theories on the causes of the disease.

As opposed to most mammals, rabbits efficiently absorb calcium passively through the intestinal wall rather than via an active transport system, independent of vitamin D₃. Phosphorus is absorbed primarily through vitamin D₃-dependent active transport. The dietary calcium:phosphorus ratio should be at least 1.5–2:1 but is often reversed in commercial mix diets or through selective feeding.

Five common theories (ie, genetic/inheritance factors, trauma, iatrogenic malocclusion, insufficient dental wear secondary to lack of abrasive food, underlying metabolic disease caused by calcium and vitamin D deficiency) outlining the cause of dental disease in rabbits are discussed. While many factors may be involved, metabolic bone disease appeared to play more of a primary role than previously thought. This, combined with abnormal dental wear, could be responsible for most dental problems in pet rabbits. Care must be taken to feed a properly balanced diet to avoid selective feeding, offering hay, meadow grass, and vegetables, with only small amounts (25 g/kg/day) of pellets with an appropriate calcium:phosphorus ratio.

Commentary

Practitioners treating dental disease in rabbits should have current knowledge of the interrelation of causes, diagnosis, and treatment. Calcium metabolism has long been considered the cornerstone to understanding dental disease, and this review is possibly one of the best summaries to date. This article reviewed seldom discussed but critical topics while presenting plausible new theories.—Adolf K. Maas, DVM, DABVP (Reptile & Amphibian)

Source