Controlling Pain in Reptiles

Analgesic use in reptiles is limited because of pain assessment subjectivity, inadequate knowledge of pharmacokinetics and efficacy, and the unknown relationship between risks and benefits. Ideally, a combination of appropriate behavioral and physiologic parameters should be used to measure pain and analgesia in reptiles, which have all the anatomic structures considered critical for pain recognition. Research in fish, amphibians, reptiles, and birds has demonstrated homology to humans in the transmission of peripheral sensory signals. The development of a species- and context-specific ethogram for each species evaluated would provide the best method for distinguishing normal over abnormal behaviors. Regardless of the route of administration, analgesic effectiveness depends partly on the size and temperament of the individual. Extrapolation of analgesic efficacy across orders and species remains a major limitation, and analgesics need to be assessed for multiple clinical situations—especially regarding postsurgical pain. Objectively derived methods for pain evaluation are critical but must be species- and context-specific. Determining pharmacokinetic parameters, duration of drug efficacy, species requirements, and deleterious effects of agents are necessary for the advancement of reptile analgesia.

Commentary
Reptiles are becoming a popular pet and procedures (eg, elective ovariohysterectomy) are more common in general practice. In addition, reptiles are living longer in captivity and presented to general practice more frequently for painful conditions found in older patients (eg, arthritis). The need for pain control is necessary for all species.

In addition to an overview of literature, this review included expert critiques on pain stimulus studies in reptiles. Ventral burns are common in reptiles, so response to ventral heat stimuli may be a poor choice when measuring pain. Another strong point is the review of analgesics that are commonly found in small animal practices and can be used in reptiles, enabling general practitioners to develop good reptile pain control protocols.—Randon D. Feinsod, DVM

Source

Antebrachial Torsion in Dogs

Antebrachial limb deformities, the most common canine skeletal malformation, often result from disturbing the ulna and/or radial physis. Accurate characterization of complex angular and rotational deformities is critical for surgical planning and remains a challenge. Computed tomography (CT) can improve detection of deformities but can be costly and is not widely available. Conventional radiography is often used for diagnostics; however, patients with torsional or combination torsional-angular deformities cannot be accurately measured using standard orthogonal radiography.

This study quantified the effect of experimentally-induced antebrachial torsion and valgus on radiographic measurements of radial valgus using a canine cadaveric forelimb. A modified radiographic technique was also compared to account for antebrachial torsion and improve accuracy of angular measurements. Antebrachial torsion >30° resulted in variable and inaccurate measurements of radial valgus, regardless of the degree of actual valgus deformity. Limb repositioning to account for the degree of antebrachial torsion improved the accuracy of radial valgus measurement for limbs with mildly induced torsion and valgus deformation.

Commentary
This study is relevant because many dogs with thoracic limb deformities have alterations in more than one plane. The accuracy of radial valgus measurement decreased with greater degrees of antebrachial torsion and valgus deformity, so that precise radiographic evaluation was not possible in limbs with >30° of torsion. Measurement of radial valgus in this study was reported as acceptable if ≤5° from the actual induced valgus deformation, although the significance of this variability is unknown. Repositioning the limb to account for detectable degree of torsion as described in this work is useful, as it improved accuracy of radiographic measurements. This can be accomplished by obtaining a craniocaudal radiographic view of the forelimb with the elbow straight, allowing the paw to rotate freely, and then taking another craniocaudal view with the carpus straight, allowing the elbow to rotate. The torsion angle can be estimated from the degree of displacement on these views, combined with measurement using a goniometer. Ultimately, complex angular and rotational limb deformities necessitate advanced cross-sectional imaging (eg, CT) to guide accurate deformity measurement for surgical planning and correction.—Jason Bleedorn DVM, DACVS

Source