Nerve growth factor (NGF) is one of many mediators of pain sensation and has been implicated in pain caused by osteoarthritis (OA). Dogs with chronic OA have higher levels of NGF in their synovial fluid as compared to control dogs. In humans, antibodies against NGF have been shown to decrease pain associated with osteoarthritis. The objective of this prospective study was to determine if administration of a monoclonal antibody (mAb) against NGF improved pain associated with OA. The study occurred over a 10-week period in which every 2 weeks each dog \( (n = 11) \) received the antiNGF mAb \( (0.2\text{mg/kg IV}) \) or a saline solution placebo. Dogs were divided into three groups: 1 group received the antiNGF mAb at 0 weeks, a second group at 2 weeks, and the third group at 4 weeks. Owners were unaware what treatment their dog was receiving. Nine dogs completed the study. Results indicated that antiNGF mAb decreased pain scores, as reported by the owners, at 2 and 4 weeks post administration. The authors acknowledged that this study contained a small number of dogs and there was no control group; thus, further research is needed to determine if antiNGF mAb could be a potential treatment for OA.

**Source**

OA is a debilitating disorder that can affect many animal species. Learn more about OA by scanning this page with the Layar App on your smartphone or tablet.

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**Research Note: Lessening Osteoarthritis Pain**

**Focus** Rubbing It in: Transdermal Medications for Cats

Transdermal methimazole preparations are increasingly popular for hard-to-medicate hyperthyroid cats. However, previous studies have shown low bioavailability of methimazole administered by this route. This study compared the pharmacokinetics of transdermal methimazole formulated into a novel lipophilic gel vs oral carbimazole, a prodrug of methimazole. Healthy young adult male cats \( (n = 6) \) were first treated with oral carbimazole (OC) at 5 mg/cat q12h for 13 treatments, followed by a 21-day washout period. Next, 5 of the cats were treated with 5 mg transdermal methimazole (TM5) applied to the inside of the pinna q24h for 7 days. Following another 21-day washout period, the same 5 cats were treated with 10 mg transdermal methimazole (TM10) q24h for 7 days. Blood samples were collected 1 hour before each treatment, then at specific time points up to 148 hours after the first dose.

All cats receiving OC had detectable concentrations of methimazole in serum within the first 12 hours after dosing. After 148 hours, the mean serum concentration of cats treated with OC was 255 ng/mL. Only 2 cats treated with TM5 had detectable serum concentrations of methimazole within 24 hours after dosing, but all had detectable concentrations after 148 hours, with a mean serum concentration of 204 ng/mL. All cats treated with TM10 had detectable serum concentrations of methimazole in the first 24 hours, and after 148 hours, the mean serum concentration was 506 ng/mL. Results supported the transdermal once-daily use of 10 mg methimazole in a novel lipophilic form for treatment of hyperthyroid cats.

**Commentary**
These results indicated that transdermal methimazole, while less bioavailable, can be a reasonable method for medication delivery in feline patients. Although results need to be tested in a hyperthyroid feline population, the study emphasized an important element of medicating veterinary patients—effectively treating patients when owners have difficulty administering medications. While pharmacies offer options for easier delivery, a key step in making these formulations available is studying their pharmacokinetics to ensure that they are delivered effectively and are available for needed treatment of certain conditions. More studies are needed as an initial step in giving clinicians the confidence to prescribe alternative formulations.—Jennifer Ginn, DVM, DACVIM

**Source**