

# Acupuncture in Conventional Cancer Care

Kendra V. Pope, DVM, DACVIM (Oncology), CVA, CVCH, CVFT, CVTP

Red Bank Veterinary Hospital  
Tinton Falls, New Jersey



## History

Rigby, a 9-year-old, neutered male golden retriever, was presented for evaluation of a firm swelling under his chin. Rigby was otherwise healthy with a normal appetite and energy level.

## Examination

Rigby was friendly, bright, alert, and responsive. Multiple firm, enlarged peripheral lymph nodes were appreciated in the mandibular, superficial cervical, popliteal, and inguinal regions. Cardiopulmonary auscultation was normal. Temperature and vital signs were within normal limits. No other abnormalities were identified.

## Diagnostic Results

Fine-needle aspiration was conducted on all enlarged peripheral lymph nodes. Evaluation of in-house cytology revealed a population of monomorphic round cells 2× to 3× the size of an RBC. Large-cell lymphoma was confirmed by a clinical pathologist.

Potential treatment options, including chemotherapy protocols and palliative care with corticosteroids, were discussed with the owner. The owner was interested in pursuing conventional treatment and asked about other methods to support Rigby through chemotherapy. As a cancer survivor, the owner had found complementary therapy beneficial in increasing her quality of life during treatment and desired the same care for her pet.

## ASK YOURSELF

**QUESTION**  
Which integrative treatment options should be recommended?

- A. Massage techniques
- B. Dietary and herbal supplements
- C. Acupuncture
- D. Nutrition
- E. All of the above

**BEST ANSWER****QUESTION**

**Which integrative treatment options should be recommended?**

E. All of the above

Complementary and alternative medicine (CAM) treatment modalities (eg, acupuncture, massage techniques, nutritional counseling, dietary supplements) are used in human medicine to complement conventional cancer care; they are commonly integrated into treatment plans to decrease pain, anxiety, and fatigue and to combat side effects of chemoradiation therapy.<sup>1</sup>

Although evidence regarding the benefits of these modalities in veterinary oncology is lacking, a 2006 survey revealed that 76% of owners of pets with cancer reported using some form of CAM.<sup>2</sup> Of these owners, only 46% used CAM because of a veterinarian's recommendation. The remaining 54% made treatment decisions based on advice from family or friends, the internet, books, or other sources (eg, breeders, health food stores, television).<sup>2</sup> Despite a lack of evidence in the veterinary literature, clients are seeking CAM modalities and looking to veterinarians for knowledge and advice.

As research in veterinary oncology, and specifically the use of CAM, continues, similar benefits as those noted in humans receiving integrative cancer care can be expected for veterinary patients.

CAM = complementary and alternative medicine

See **Acupuncture to Support Veterinary Oncology Patients** on page 79 of this issue to read one expert's opinion on acupuncture use in veterinary cancer patients.

**Acupuncture in Cancer Care<sup>3</sup>**

Based on the principles of traditional Chinese medicine, acupuncture needle placement allows energy known as *chi* to flow freely throughout channels, or meridians, which may relieve blockages thought to cause pathology or disease.<sup>1</sup> The neurophysiologic effects of acupuncture are mediated locally and distantly by endorphins, endogenous opioids, anti-inflammatory cytokines, and monoamine neurotransmitters; they likely work via interplay among connective tissue, neurologic pathways, lymphatics, and the vascular system.<sup>4</sup>

There are no publications regarding acupuncture use in veterinary oncology.<sup>3</sup> Clinical research in human oncology shows that acupuncture has significant therapeutic value and helps reduce common physical and emotional side effects associated with cancer and its treatment.<sup>5</sup> In 2009, the Society for Integrative Oncology published clinical practice guidelines regarding the use of complementary therapies and botanicals in human cancer care<sup>1</sup>; acupuncture was strongly recommended as a complementary therapy in human oncology when<sup>1</sup>:

- Pain is poorly controlled
- Side effects from treatment are clinically significant
- Chemotherapy-induced nausea and vomiting are poorly controlled
- Reducing pain medication becomes a clinical goal

Other reports also support the use of acupuncture for:

- Chemotherapy-induced neuropathy<sup>6</sup>
- Nausea and vomiting<sup>7,8</sup>
- Xerostomia<sup>9,10</sup>
- Chemotherapy-induced fatigue<sup>11</sup>
- Neutropenia and leukopenia<sup>12,13</sup>
- Hot flashes<sup>5,13</sup>
- Pain associated with aromatase inhibitor use<sup>13</sup>
- Lymphedema<sup>14</sup>
- Treatment-related sleep disturbances<sup>15</sup>
- Treatment-related anxiety and depression<sup>15</sup>
- Immunomodulation<sup>16</sup>

Although continued research and well-designed clinical trials are needed to definitively support acupuncture use in these adjunctive settings—because of rare contraindications and a lack of concern for safety when performed by a qualified practitioner—potential applications are vast. Caution should be exercised in patients with bleeding tendencies. However, all of the reports found acupuncture safe for cancer patients, with minor soreness or bruising reported as the most common adverse event.<sup>6-16</sup>

## The Take-Home

Integrative oncology provides patient-centered care through available treatment modalities using both Western medicine and CAM to achieve optimal health and healing.

Benefits of acupuncture for veterinary cancer patients are expected to mirror those in human cancer patients. Continued investigation into other integrative treatment modalities in veterinary oncology will continue to support the One Health Initiative and benefit humans and animals alike in all aspects of comprehensive cancer care. ■

See page 109 for references.

### Brief Summary of Prescribing Information

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Antimicrobial for Subcutaneous Injection in Dogs and Cats Only

**CAUTION: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.**

#### INDICATIONS:

##### Dogs

CONVENIA is indicated for the treatment of skin infections (secondary superficial pyoderma, abscesses, and wounds) in dogs caused by susceptible strains of *Staphylococcus intermedius* and *Streptococcus canis* (Group G).

##### Cats

CONVENIA is indicated for the treatment of skin infections (wounds and abscesses) in cats caused by susceptible strains of *Pasteurella multocida*.

**CONTRAINDICATIONS:** CONVENIA is contraindicated in dogs and cats with known allergy to cefovecin or to  $\beta$ -lactam (penicillins and cephalosporins) group antimicrobials. Anaphylaxis has been reported with the use of this product in foreign market experience. If an allergic reaction or anaphylaxis occurs, CONVENIA should not be administered again and appropriate therapy should be instituted. Anaphylaxis may require treatment with epinephrine and other emergency measures, including oxygen, intravenous fluids, intravenous antihistamine, corticosteroids, and airway management, as clinically indicated. Adverse reactions may require prolonged treatment due to the prolonged systemic drug clearance (65 days).

**WARNINGS: Not for use in humans. Keep this and all drugs out of reach of children.** Consult a physician in case of accidental human exposure. For subcutaneous use in dogs and cats only. Antimicrobial drugs, including penicillins and cephalosporins, can cause allergic reactions in sensitized individuals. To minimize the possibility of allergic reactions, those handling such antimicrobials, including cefovecin, are advised to avoid direct contact of the product with the skin and mucous membranes.

**PRECAUTIONS:** Prescribing antibacterial drugs in the absence of a proven or strongly suspected bacterial infection is unlikely to provide benefit to treated animals and may increase the risk of the development of drug-resistant animal pathogens.

The safe use of CONVENIA in dogs or cats less than 4 months of age and in breeding or lactating animals has not been determined. Safety has not been established for IM or IV administration. The long-term effects on injection sites have not been determined. CONVENIA is slowly eliminated from the body, approximately 65 days is needed to eliminate 97% of the administered dose from the body. Animals experiencing an adverse reaction may need to be monitored for this duration.

CONVENIA has been shown in an experimental *in vitro* system to result in an increase in free concentrations of carprofen, furosemide, doxycycline, and ketoconazole. Concurrent use of these or other drugs that have a high degree of protein-binding (e.g. NSAIDs, propofol, cardiac, anticonvulsant, and behavioral medications) may compete with cefovecin-binding and cause adverse reactions.

Positive direct Coombs' test results and false positive reactions for glucose in the urine have been reported during treatment with some cephalosporin antimicrobials. Cephalosporin antimicrobials may also cause falsely elevated urine protein determinations. Some antimicrobials, including cephalosporins, can cause lowered albumin values due to interference with certain testing methods.

Occasionally, cephalosporins and NSAIDs have been associated with myelotoxicity, thereby creating a toxic neutropenia<sup>4</sup>. Other hematological reactions seen with cephalosporins include neutropenia, anemia, hypoprothrombinemia, thrombocytopenia, prolonged prothrombin time (PT) and partial thromboplastin time (PTT), platelet dysfunction and transient increases in serum aminotransferases.

#### ADVERSE REACTIONS:

##### Dogs

A total of 320 dogs, ranging in age from 8 weeks to 19 years, were included in a field study safety analysis. Adverse reactions reported in dogs treated with CONVENIA and the active control are summarized in Table 2.

**Table 2: Number of Dogs\* with Adverse Reactions Reported During the Field Study with CONVENIA.**

Adverse Reaction	CONVENIA (n=157)	Active Control (n=163)
Lethargy	2	7
Anorexia/Decreased Appetite	5	8
Vomiting	6	12
Diarrhea	6	7
Blood in Feces	1	2
Dehydration	0	1
Flatulence	1	0
Increased Borborygmi	1	0

\*Some dogs may have experienced more than one adverse reaction or more than one occurrence of the same adverse reaction during the study.

Mild to moderate elevations in serum  $\gamma$ -glutamyl transferase or serum alanine aminotransferase were noted post-treatment in several of the CONVENIA-treated dogs. No clinical abnormalities were noted with these findings.

One CONVENIA-treated dog in a separate field study experienced diarrhea post-treatment lasting 4 weeks. The diarrhea resolved.

##### Cats

A total of 291 cats, ranging in age from 2.4 months (1 cat) to 21 years, were included in the field study safety analysis. Adverse reactions reported in cats treated with CONVENIA and the active control are summarized in Table 3.

**Table 3: Number of Cats\* with Adverse Reactions Reported During the Field Study with CONVENIA.**

Adverse Reaction	CONVENIA (n=157)	Active Control (n=163)
Vomiting	10	14
Diarrhea	7	26
Anorexia/Decreased Appetite	6	6
Lethargy	6	6
Hyper/Acting Strange	1	1
Inappropriate Urination	1	0

\*Some cats may have experienced more than one adverse reaction or more than one occurrence of the same adverse reaction during the study.

Four CONVENIA cases had mildly elevated post-study ALT (1 case was elevated pre-study). No clinical abnormalities were noted with these findings.

Twenty-four CONVENIA cases had normal pre-study BUN values and elevated post-study BUN values (37–39 mg/dL post-study). There were 6 CONVENIA cases with normal pre- and mildly to moderately elevated post-study creatinine values. Two of these cases also had an elevated post-study BUN. No clinical abnormalities were noted with these findings.

One CONVENIA-treated cat in a separate field study experienced diarrhea post-treatment lasting 42 days. The diarrhea resolved.

**FOREIGN MARKET EXPERIENCE:** The following adverse events were reported voluntarily during post-approval use of the product in dogs and cats in foreign markets: death, tremors/ataxia, seizures, anaphylaxis, acute pulmonary edema, facial edema, injection site reactions (alopecia, scabs, necrosis, and erythema), hemolytic anemia, salivation, pruritus, lethargy, vomiting, diarrhea, and inappetence.

**For a copy of the Material Safety Data Sheet, (MSDS) or to report a suspected adverse reaction call Zoetis Inc. at 1-888-963-8471.**

#### STORAGE INFORMATION:

Store the powder and the reconstituted product in the original carton, refrigerated at 2° to 8° C (36° to 46° F). **Use the entire contents of the vial within 56 days of reconstitution.** PROTECT FROM LIGHT. After each use it is important to return the unused portion back to the refrigerator in the original carton. As with other cephalosporins, the color of the solution may vary from clear to amber at reconstitution and may darken over time. If stored as recommended, solution color does not adversely affect potency.

#### HOW SUPPLIED:

CONVENIA is available as a 10 mL multi-use vial containing 800 milligrams of cefovecin as a lyophilized cake.

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