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## VETERINARY ONCOLOGY CONSULTANTS

*helping veterinarians treat pets with cancer*

### Neutropenia after chemotherapy: what's OK, what isn't?

Most pet owners are pleasantly surprised at how well their pets feel during chemotherapy. However some side effects may occur, primarily following the first time a patient receives a chemotherapy drug. Of these, neutropenia is the one most likely to be life-threatening, due to the increased risk of sepsis. Uncomplicated neutropenia causes no symptoms, resolves in a few days without specific therapy, and carries a good prognosis. Sepsis is usually preventable through judicious monitoring and appropriate supportive care during cancer therapy, making the risk approximately 5% in veterinary cancer patients. However, when sepsis does occur, dogs may hide their symptoms until late in the disease and the condition may be quite advanced when first recognized, requiring prompt intervention by the veterinary health care team. Caregivers should be educated about

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#### **Oncotip**

PhaSeal is a closed, double-membrane system for injectable drug transfer. The drug is transferred via a specially cut cannula and when the components are separated after transfer, the membranes act as tight seals, preventing leakage and drug contact with the atmosphere. PhaSeal was tested for 1 year in the oncology unit of a Swedish hospital: no safety cabinet was used for drug preparation, and no cytotoxic drugs were found in the environment after 1 year. This study suggests that the use of PhaSeal alone is sufficient to prevent environmental contamination. VOC was the first veterinary group to use this system in Australia, and we have been very pleased with the flexibility and ease of use. For more information contact Intensive Care Products at (02) 9984 2280 or icp@auspharm.com.

### Newsletter

January 2007

The last few months of 2006 were busy and enjoyable for us, with speaking engagements at two international conferences and getting to know many new veterinarians through our consulting service.

In 2007 we will again be offering the **Minicourse in Oncology for Veterinary Practitioners**, this year at the Crowne Plaza, Coogee Beach on 28 April ...details and registration materials are attached with this Newsletter and available on our website.

As part of our ongoing commitment to furthering knowledge in veterinary oncology, we may be contacting you in the future, to invite you to participate in retrospective studies by following up on cases.

We hope you had a successful 2006 and enjoyable and refreshing holidays, and wish you a peaceful and prosperous 2007.

Best regards, *Tony and Angela*

*Veterinary Oncology Consultants' mission is to assist other veterinarians in providing the highest possible quality of life for pets with cancer and their human families, by making evidence- and compassion-based recommendations for their care and providing educational materials.*

#### Important News for Consulting Service Users

**Request Forms:** As we're always working to improve the functioning of our consulting service as well as the quality of the information, 2007 forms are now in use.

Only the cover page has changed since last year, with updated fees and a new item requesting a billing contact person for your practice; pages 2 and 3 remain the same.

The new form is available in downloadable (pdf) and interactive types on our website, [www.vetoncologyconsults.com](http://www.vetoncologyconsults.com)—or we're always happy to email or fax you one!

**Credit Cards:** We are now able to accept credit card payment of invoices. We can maintain credit card information on file for automatic payment of invoices at your request.

We are now asking all international veterinarians to use credit card payment as it greatly streamlines the process compared to calculating exchange rates and depositing foreign currency cheques, and will include credit card payment forms with international invoices.

Australian veterinarians are invited to pay invoices by credit card if you find it more convenient, however you can continue to use cheque and direct deposit as before. If you wish to pay by credit card, please contact us and we will fax or email you a form.

## New Literature

These two articles, together with one in Nature 439; 549 by Pearse and Swift, delineate in more veterinary terms this concerning cause of massive population decline in Tasmanian devils.

We have contacted veterinary staff at DPI in Tasmania, to offer our help in developing treatment strategies for this devastating disease of our native Australian wildlife.

## The pathology of devil facial tumor disease in Tasmanian devils (*Sarcophilus harrisi*) Loh, R et al. *Vet. Pathol.* 2006; 43:890-895 and 896-903.

Devil facial tumour disease (DFTD) was first described in 1997 and now affects Tasmanian devils across more than 50% of their natural range, accounting for population declines of up to 80% in some areas.

In these 2 articles, the

tumours are described as large soft-tissue masses usually with a central ulcerated area and exudative surfaces. There are usually multiple lesions initially arising on the face (especially oral areas) and neck, but then metastasizing in 65% of animals to affect primar-

ily lymph nodes, but also lungs and less frequently other sites such as spleen and heart. However, mortality is usually due to the facial tumours causing dysphagia in the great majority of affected animals within approximately 6 months of onset.

## Neutropenia, cont'd...

the early clinical signs of sepsis, so that they can assist in early detection and seek immediate treatment. Timely treatment can make the difference between life and death for these patients.

Prophylactic antibiotic therapy is often recommended for patients receiving myelosuppressive chemotherapy as a method of reducing the risk of sepsis. The bacteria that most commonly cause sepsis in veterinary cancer patients arise from the pet's own flora. We usually recommend trimethoprim sulfa (unless contraindicated in the individual) as a prophylactic measure in any dog receiving a myelosuppressive agent for the first time (until the nadir neutrophil count is known) as this drug is relatively inexpensive, orally administered, and has little negative effect on gastrointestinal flora. In cats enrofloxacin (or orbifloxacin; which appears to cause less nausea) can be given. This approach has been shown to reduce morbidity and hospitalization in dogs treated with doxorubicin chemotherapy for osteosarcoma or lymphoma.

### Grade 1 Neutropenia

For most chemotherapy patients the neutrophil count at the expected nadir is between normal and  $1.5 \times 10^9/L$ . At this level the risk of complicating illness is low, but because the time of the true nadir is not known for an individual patient prophylactic antibiotics should be continued on an outpatient basis. Prior to the next dose of myelosuppressive chemother-

apy another CBC should be collected and the next drug should not be administered unless the neutrophil count is above  $3.0 \times 10^9/L$ . For animals with mild neutropenia, the dosage of the chemotherapy drug causing that effect should **not** be changed the next time the drug is administered unless recovery is delayed requiring the next treatment to be postponed.

### Grade 2 Neutropenia

With a neutrophil count between  $1.5 \times 10^9/L$  and  $1.0 \times 10^9/L$  following chemotherapy, the risk of complicating illness is still fairly low but again, prophylactic antibiotics should be continued on an outpatient basis. Prior to the next dose of myelosuppressive chemotherapy another CBC should be collected and the next drug should not be administered unless the neutrophil count is above  $3.0 \times 10^9/L$ . For these animals, the dosage of the drug causing that effect does not need to be changed the next time the drug is administered, although veterinarians less experienced in giving chemotherapy may prefer to make a 25% dose reduction for all subsequent doses of that drug.

### Grades 3 & 4 Neutropenia

Some animals experience more pronounced myelosuppression, with a neutrophil count between  $1.0 \times 10^9/L$  and  $0.5 \times 10^9/L$  (grade 3) following chemotherapy. At this level the risk of complicating illness is much higher, although most animals still will not experience sepsis if they receive prophylactic antibiotics.

Rarely chemotherapy may result in a neutrophil count below  $0.5 \times 10^9/L$  (grade 4). At this level the risk of sepsis is very high, and some animals will become septic even if they are receiving prophylactic antibiotics.

These pets should be examined but **not** be hospitalized unless parenteral care is needed. Owners should check the temperature twice a day, and contact you promptly if it is above normal on 2 occasions 30 minutes apart, or if any other signs of illness (vomiting, diarrhoea, anorexia) occur; and the patient seen as an emergency. Prior to the next dose of a myelosuppressive agent another CBC should be collected and the next drug should not be administered unless the neutrophil count is above  $3.0 \times 10^9/L$ . For animals with grade 3 or 4 neutropenia, the dosage of the drug causing that effect should be reduced by 25% for all subsequent doses of **that drug**; and a CBC should be collected at the expected nadir after administering the reduced dose of that drug.

### Sepsis

When presented with a febrile neutropenic cancer patient, the veterinarian should initiate therapy with parenteral broad-spectrum antibiotics and aggressive intravenous fluid therapy, along with any other supportive care appropriate to the individual case. If sepsis is allowed to progress to septic shock, the prognosis deteriorates markedly, however when it is treated promptly and aggressively the prognosis is fair to good.