

Improved Response with Metronomic Chemotherapy



Chemotherapy involves administration of cytotoxic drugs at the maximum tolerated dose (MTD) to inhibit or kill rapidly dividing tumor cells with the least amount of adverse effects. Limitations include toxicoses, potential lack of effectiveness, development of resistance, and considerable expertise and expense involved. Recent studies and anecdotal evidence suggest chemotherapy at doses considerably lower than the MTD for several months or more, or *metronomic therapy*, could be beneficial.

In this study, 36 dogs with various cancers were given chlorambucil at 4 mg/m² PO q24h. Toxicoses were uncommon and limited to GI signs in 4 dogs (resolution achieved with supportive care). Three dogs (with mast cell tumor, soft tissue sarcoma, and thyroid carcinoma) showed complete remission. Tumor response was similar in other patients, with median progression-free interval of 61 days and median survival time of 153 days for all dogs.

Indicated by tumor volume measurements, tumor responses included 8% complete remission, 3% partial remission, and 47% stable disease. Even when disease progressed, progression was slower than it was before chlorambucil administration. Cancer control was achieved in dogs that had previously failed other therapies, including traditional chemotherapy given at MTD. Results suggest chlorambucil may be an effective drug for metronomic therapy in dogs with cancer. Future studies should include cohorts by cancer type and drug dose to further ascertain metronomic therapy protocols.

■ Commentary

Metronomic chemotherapy has supportive data from both human and veterinary trials. Chlorambucil has a good safety profile and none of the hemorrhagic cystitis seen with cyclophosphamide, another alkylating agent also used for metronomic dosing. Myelosuppression is still a concern and warrants close monitoring. Although metronomic protocols are as easy to administer as an oral medication, the easiest protocol may not be the best for a specific cancer; all options should be presented to owners, not just the easiest or least expensive. An oral-based protocol may be ideal for the right patient while maintaining cost and contributing to increased overall survival.—*J.A. Impellizeri, DVM, DACVIM (Oncology)*

■ ■ Source

Prospective trial of metronomic chlorambucil chemotherapy in dogs with naturally occurring cancer. Leach TN, Childress MO, Greene SN, et al. *VET COMP ONCOL* 10:102-112, 2012.

RESEARCH NOTE: Echocardiography for the Everyday Veterinarian

Focused echocardiography has been used by emergency veterinarians for establishing preliminary diagnoses and to help guide initial management of patients in acute circulatory or respiratory failure. This prospective study sought to determine whether a training course in focused echocardiography might improve proficiency of interns and residents not enrolled in cardiology training programs in accurately interpreting echocardiography findings in dogs. The course was developed and administered by 3 board-certified veterinary cardiologists. Written examinations were administered to participants before and after the course, which included didactic lectures followed by a hands-on laboratory session and practical examination involving transthoracic echocardiography on dogs with and without cardiovascular disease. The purpose was to determine whether the course

might help optimize patient care through appropriate initiation of emergent treatment and triage decisions by the emergency clinician. The training course was found to improve knowledge and resulted in acceptable proficiency in some echocardiographic findings commonly identified in emergent patients. Skills needed to accurately assess fluid volume status, identify cardiac masses, ventricular enlargement or hypertrophy, and certain cardiac diseases, however, were not provided by this course.

■ ■ Source

Evaluation of a training course in focused echocardiography for noncardiology house officers. Tse YC, Rush JE, Cunningham SM, et al. *JVECC* 23:268-273, 2013.

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