Evaluation of a Point-of-Care Hematology Analyzer in Dogs and Cats Receiving Anticancer Chemotherapy

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INTRODUCTION: The new in-house hematology analyzer LaserCyte® (IDEXX Laboratories, Westbrook, ME) performs a complete blood count (CBC) with a five-part differential and reticulocyte count using laser flow cytometry. The aim of this study was to compare results generated by the LaserCyte® with those obtained by standard methods in dogs and cats undergoing chemotherapy.

METHODS: Dogs and cats in the study had one of these neoplasms: LSA, CLL, OSA, MH, MCT, HSA, FSA, malignant melanoma, or carcinoma. Chemotherapeutic protocols consisted of single agent or combinations of: doxorubicin, vincristine, cyclophosphamide, L-asparaginase, cytosine arabinoside, CCNU, gemcitabine, carboplatin, chlorambucil, melphalan, actinomycin D, methotrexate, prednisone and suramin. We evaluated 370 samples from 83 dogs and 70 from 23 cats on the LaserCyte® and CellDyn-3500® (Abbott Diagnostics, Abbott Park, IL) with a manual differential count.

RESULTS: Correlation coefficients (dogs/cats) were: 0.95/0.93 for hematocrit (HCT), 0.93/0.95 for total white blood cells (WBC), 0.93/0.94 for neutrophils, and 0.93/0.71 for platelet (PLT) count. All CBCs where leukopenia, neutropenia, or anemia were detected with standard methods had the same feature with LaserCyte®. Thrombocytopenia was detected with LaserCyte® in 93% (dogs) and 26% (cats) of the thrombocytopenic samples detected with standard methods.

CONCLUSIONS: The LaserCyte® is a reliable hematology analyzer for dogs and cats on chemotherapy. It had excellent correlation for HCT, PLT, WBC, and neutrophil counts, and accurately detected anemia, leukopenia, or neutropenia. The sensitivity of the instrument for thrombocytopenia was lower (predominantly feline), but acceptable. In general, automated measurements of feline platelets can be highly variable method to method.

Presented at: Veterinary Cancer Society Conference; October 27–30, 2005; Huntington Beach, California.