Immunohistochemical detection of P-glycoprotein in various subtypes of canine lymphomas

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Abstract

 Combination chemotherapy is the current standard of care for dogs with lymphoma. Multidrug resistance is one of the most important factors contributing to the efficacy of chemotherapy. The major protein responsible for this phenomenon is P-glycoprotein. Little is known about P-glycoprotein expression in particular subtypes of lymphomas. The aim of the study was evaluation of P-glycoprotein expression in various subtypes of canine lymphomas. Positive reaction with P-glycoprotein was found in 12/25 cases of various morphological subtypes of lymphomas, however, in 3/11 lymphomas the percentage of positively weakly stained cells was <10% and those tumors were also considered negative. Tumors with 10-50% P-glycoprotein positive cells were found in single cases of centroblastic and centroblastic-centrocytic tumors. In 5 lymphomas P-glycoprotein expression exceeded 50% of tumor cells. Those cases were found among centroblastic, centroblastic-centrocytic, lymphoblastic and Burkitt-like subtypes. Positive reaction was observed mainly in the cell cytoplasm, however, in some cases prominent perinuclear dot-like staining pattern was found. In 2 cases focal staining pattern comprised dominant type of immunolabelling. Among all lymphomas containing P-glycoprotein positive cells intensity of immunolabelling was assessed as weak (6/25), moderate (2/25) and strong (3/25). Our results indicate that P-glycoprotein expression is present in nearly one third of newly diagnosed canine lymphomas of different morphological subtypes including those most commonly occurring, such as centroblastic lymphomas. Hence, determination of P-glycoprotein expression at the time of diagnosis could provide valuable information for the design of treatment protocols. Moreover, our results have shown that P-glycoprotein expression in canine tumors could be located in Golgi-zone.

Key words: dog, lymphoma, P-glycoprotein, immunolabelling

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