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Oral presentation

Current diagnostic methods in canine mammary tumor: Biomarkers

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Abstract

Mammary tumors are the most common type of tumors in sexually intact bitches. Several techniques such as fine neddle biopsy, excisional biopsy, radiography, computed tomography have been used for diagnosis of mammary tumors. Age, tumor size and stage, tumor histopathological type, clinical behaviour of the tumor, tumor grade, estrogen receptor status, microvessel density, and molecular genetic alterations are identified as prognostic factors in canine mammary tumors (CMT). Canine mammary tumors are highly similar with human breast cancer (HBC). Because of that reason, human biomarkers of HBC are also used for diagnosis and investigating the pathophysiology of CMT. Nowadays, these biomarkers can be determined by molecular techniquies and they can be measured in the blood, body fluids and tumor tissue. Tumor biomarkers can be detected by several techniques such as immunohistochemistry, polymerase chain reaction, flow cytometry, immunofluorescence. These techniques should be sensitive and capable enough for seperating the malignant cells from non-tumoral hematopoietic cells. In addition, these biomarkers are useful in the detection of cancer recurrence, selection and arrangement of cancer treatment, determining the response to cancer treatment, providing information about the diagnosis and prognosis of cancer and contributing to the understanding of cancer biology. Biomarkers used for this purpose and their effects are stated respectively as; determination of proliferation and apoptosis of cancer cells (Ki-67, PCNA, protein p53), determination of metastatic potential of tumor (E-cadherin, CEA, CA 15-3), determination of angiogenesis (VEGF, EGFR, HER-2), determination of inflammation (COX-2), determination of hormone receptors (estrogen, progesterone), determination of BRCA1 and BRCA2 gene mutations. The detection of biomarkers is a current approach in order to examine the pathophysiology of CMTs. These biomarkers are important structures that provides early diagnosis on the clinical course and prognosis of CMTs.

Keywords: Biomarker, canine, mammary tumor.

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