

Parathyroid Hormone Receptor 1 as a Prognostic Indicator in Canine Osteosarcoma

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Abstract : Osteosarcoma (OS) is the most common type of malignant primary bone tumour in dogs. In addition to their critical roles in bone formation and remodeling, parathyroid hormone-related protein (PTHrP) and its receptor (PTHr1) are involved in progression and metastasis of many types of tumours in humans. The aims of this study were to determine the localisation and expression levels of PTHrP and PTHr1 in canine OS tissues using immunohistochemistry and to investigate if this expression is correlated with survival time. Formalin-fixed, paraffin-embedded tissue samples from 44 dogs with known survival time that had been diagnosed with primary osteosarcoma were analysed for localisation of PTHrP and PTHr1. Findings showed that both PTHrP and PTHr1 were present in all OS samples. The dogs with high level of PTHr1 protein (16%) had decreased survival time ($P < 0.05$) compared to dogs with less PTHr1 protein. PTHrP levels did not correlate with survival time ($P > 0.05$). The results of this study indicate that the PTHr1 is expressed differently in canine OS tissues and this may be correlated with poor prognosis. This may mean that PTHr1 may be useful as a prognostic indicator in canine OS and could represent a good therapeutic target in OS.

Keywords : dog, expression, osteosarcoma, parathyroid hormone receptor 1 (PTHr1), parathyroid hormone-related protein (PTHrP), survival

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