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ANALYSIS OF OVERALL SURVIVAL IN BITCHES WITH BREAST CANCER USING TARGET PROTEINS RELATED TO THE PI3K/AKT/MTOR PATHWAY

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This study aims to verify survival in female dogs with breast tumor by analyzing the expression of target proteins PIK3CA, ZEB1, and ZEB2 belonging to the PI3K/AKT/mTOR pathway through immunohistochemistry (IHC) test in a retrospective study. The samples were obtained from dogs with breast cancer, previously identified by standard histopathological analysis, from which tissue microarray (TMA) blocks were made, and then immunohistochemical analyzes (IHC) were carried out using the development kit “REVEAL Polyvalent HRP-DAB Detection System,” for the proteins previously mentioned. For the purpose of prognostic analysis, these dogs were monitored for 540 days after surgical resection and survival was related to protein expression using the histoscore (HS) method. The HS is a measure to convert the IHC into quantitative values, and it is based on the intensity of the staining and the percentage of stained cells, ranging from 0 to 300. Individually through the analysis of the IHC, it was observed in the PIK3CA protein that from the HS = 164 the survival was on average 189 days, for ZEB1, the HS = 100 the survival was on average 438 days, and on the protein ZEB2 with the HS = 157, the survival was on average 178 days. Thus, the high expression of PIK3CA and ZEB2 proteins was correlated with lower survival in the dogs. In all studied proteins, it was observed that HS > 100 was correlated with a significant reduction in overall survival ($p > 0.05$). The lower survival in female dogs with breast cancer after surgical resection was related to low rates of expression of PIK3CA and ZEB2 and, therefore, these can be considered as prognostic markers reserved for breast cancer in female dogs.

Keywords: Canine; Breast; Cancer; PIK3CA; Metastasis; Survival.