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AKT2 expression and two years overall survivor in colorectal cancer: A retrospective cohort study

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Statement of the Problem: Colorectal cancer (CRC) is one of the most important cancers. There is a great effort to understand the molecular involvement to predict and counterbalance the odds of metastatic disease. The proto-oncogene serine/threonine kinase (AKT2) stood out among the studies. The role of AKT isoforms as a whole is already linked to cell proliferation, glucose uptake, metabolism, angiogenesis and radiation and drug response. The researches with AKT2 have linked its expression with advanced tumors and metastatic CRC. However, there is a lack of studies comparing the AKT2 expression and overall survivor (OS) in CRC patients yet. This study intends to evaluate the relation between AKT2 expression and two years OS among patients with CRC.

Methods: 140 patients with CRC diagnosed between 2010 and 2015 in a city in Paraná state, Brazil were enrolled for this study. Primary tumor samples were obtained and analyzed through immunohistochemistry for expression of AKT2. The clinical data was retrospective collected from medical records. Shapiro-Wilk test found a non-Gaussian distribution, hence Mann-Whitney test was conducted. The authors defined significant a $P > 0.05$.

Findings: 96 patients (68.6%) had a positive two years OS. Forty-four (31.4%) had a confirmation of death in the period. The survivors group had an AKT2 expression varying between 0.6 and 60.3, 95% confidence interval (CI) of 12.2 and 20.8 and a median of 17.2. The death group positivity was between 0.9 and 58.9, the 95% CI discreetly higher, between 14.8 and 29.8 and a 21.8 median.

Conclusion: The 95% CI and medians obtained were higher among the patients with the death outcome in two years. However, the statistical analysis found no significance in AKT2 expression among the groups ($P = 0.2378$). Therefore, the results suggest that there is no correlation between the marker expression and two years OS in CRC patients. However, it is important to continue the researches with the AKT2 to check for different results when comparing specific groups of patients.

Recent Publications

1. Agarwal E, Brattain M G and Chowdhury S (2013) Cell survival and metastasis regulation by Akt signalling in colorectal cancer. *Cell Signal* 25:1711-1719.
2. Agarwal E, Robb C M, Smith L M, Brattain M G, Wang J, Black J D and Chowdhury S (2017) Role of Akt2 in regulation of metastasis suppressor 1 expression and colorectal cancer metastasis. *Oncogene* 36:3104-3118.
3. Baba Y, Nosho K, Shima K, Hayashi M, Meyerhardt J A, Chan A T, Giovannucci E, Fuchs C S and Ogino S (2011) Phosphorylated AKT expression is associated with PIK3CA mutation, low stage, and favorable outcome in 717 colorectal cancers. *Cancer* 117:1399:1408.
4. Ding Z, Xu F, Li G, Tang J, Tang Z, Jiang P, Wu H (2014) Knockdown of Akt2 expression by ShRNA inhibits proliferation, enhances apoptosis, and increases chemosensitivity to paclitaxel in human colorectal cancer cells. *Cell Biochemistry and Biophysics* 71:383-388.
5. Sahlberg S H, Gustafsson A S, Pendekanti P N, Glimelius B and Stenerlow B (2014) The influence of AKT isoforms on radiation sensitivity and DNA repair in colon cancer cell lines. *Tumor Biology* 35:3525-3534.

Biography

Caroline Saad Vargas is a Gastroenterologist, Endoscopist and Assistant Professor at State University of Ponta Grossa. She has her expertise in Advanced Endoscopy, Eosinophilic esophagitis and she is currently working on inflammatory colorectal cancer pathways on her PhD.

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