AB039. P-07. Elevated expression of the key components of polycomb repressive complex 2 is associated with poorer survival outcome in cholangiocarcinoma

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Background: Cholangiocarcinoma (CCA) is a fatal liver cancer arising from bile duct epithelium. Polycomb repressive complex 2 (PRC2) is a histone methyltransferase enzyme that catalyzes trimethylation of histone H3 on lysine 27, resulting transcriptional gene silencing. The key components of PRC2 are EZH2, SUZ12 and EED, which EZH2 is a catalytic subunit. The defect of individual PRC2 components has been shown to enhance carcinogenesis and cancer progression. We aimed to determine the expression of individual PRC2 components and evaluate its association with clinicopathological data in CCA patients.

Methods: The expression of individual PRC2 components including EZH2, SUZ12 and EED was determined by immunohistochemistry in 40 CCA tissue samples.

Results: We found that the expression of EZH2 and SUZ12 in CCA tissue was significantly higher than that in adjacent non-cancerous tissue (P<0.001). The low expression of EZH2 and EED was also significantly associated with early stage and negative lymph node metastasis. Moreover, the high cytoplasmic EZH2 expression was significantly associated with short overall survival in CCA (P=0.030). Interestingly, a combined high nuclear and cytoplasmic expression of EZH2 was found to be a worse predictor of overall survival (P=0.015). In addition, combined high cytoplasmic or nuclear expression of PRC2 components was also associated with short overall survival compared to combined low expression (P=0.020 and 0.046, respectively).

Conclusions: Our findings suggest that overexpression of the PRC2 key components especially EZH2 in both nucleus and cytoplasm can be potentially used as a prognostic marker for CCA.

Keywords: Epigenetics; histone methylation; EZH2; biomarker

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