6BP MicroRNA-21 functions as a prognosis predictor in head of pancreas tumor

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Background: Pancreatic ductal adenocarcinoma (PDAC) is the fourth leading cause of cancer related death in men and women. Approximately 60-70% of PDACs arise in the head of the pancreas. Since the early diagnosis of head of the pancreas tumors is difficult, patients are frequently at an advanced stage at the time of diagnosis and have extremely short survival. Furthermore, the mechanism of pathogenesis in PDAC is not completely understood and there are currently no effective therapies. Recent studies demonstrated that miRNAs play critical roles in various types of tumors including PDAC and thereby has high diagnostic value for screening and great clinical value for cancer therapy. The aim of the present study was to determine the expression profile of miRNAs in head of pancreas and examine its association with prognosis.

Methods: A total of 56 patients who underwent pancreaticoduodenectomy for head of pancreas were analyzed for 12 different miRNAs by RT-PCR.

Results: miR-21 and miR-10b were 11.78-fold ($P = 0.004$) and 9.62-fold ($P = 0.021$) higher, and the miR-143 expression was 5.49-fold lower ($P = 0.0412$) in tumor tissues compared with normal tissues. The over expression of miR-21 was related with lymphatic invasion ($P = 0.0203$). Moreover, high miR-21 expression was an independent poor prognostic factor for overall survival ($P = 0.0242$).

Conclusions: The elevated expression of miR-21 may be involved in the progression of head of pancreas tumors and may therefore be considered a prognostic factor for patients with poor prognosis.

Legal entity responsible for the study: Ekrem Kaya

Funding: Has not received any funding

Disclosure: All authors have declared no conflicts of interest.