MicroRNA Expression Analyses in Preoperative Pancreatic Juice Samples of Pancreatic Ductal Adenocarcinoma

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ABSTRACT

Context Cytological assessment of pancreatic juice is commonly used to diagnose pancreatic ductal adenocarcinoma (PDAC); however, the sensitivity of cytological assessment has been reported to be low. MicroRNAs are small RNAs regulating various cellular processes and have been recently identified as possible markers of malignant diseases including PDAC. Objective The purposes of this study were to prove the existence of microRNAs in pancreatic juice and to determine whether specific microRNAs in pancreatic juice could be used for detection of PDAC. Methods Relative expression levels of microRNA-21 and microRNA-155 in formalin-fixed paraffin-embedded tissues of resected specimen (n=13) and pancreatic juice samples collected by preoperative endoscopic retrograde cholangiopancreatography (n=21) were quantified and then expression levels were compared between PDAC and chronic pancreatitis (CP). Results Relative expression levels of microRNA-21 in tissue (P=0.009) and pancreatic juice (P=0.021) samples were significantly higher in PDAC than those in CP. The same results were obtained in the expression levels of microRNA-155 in tissue (P=0.014) and pancreatic juice (P=0.021) between PDAC and CP. Expression levels of microRNA-21 and microRNA-155 did not correlate with preoperative cytological results of pancreatic juice. Conclusion MicroRNA-21 and microRNA-155 in pancreatic juice have potential to become biomarkers for the diagnosis of PDAC.