PTEN and MIR-21 Expression in IPMN and PDAC

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Context The prognosis of invasive IPMN is better than for PDAC and many authors believe that IPMNs have distinct genetic and biological characteristics underlying this different clinical behavior. Objective Since previous studies correlated miR-21 expression with PTEN levels and worse prognosis in PDAC, we compared PTEN and miR-21 expression in invasive IPMNs and PDACs. Methods Ten invasive IPMN and 16 PDAC were evaluated for both PTEN expressions, with a validated immunohistochemistry method: 4 degrees of score (0 absent, 1 weak, 2 moderate, 3 strong). The miR-21 expression, as assessed by PCR in mRNA isolated from laser-microdissected samples. According to the miR21 quantification, all samples were identified as follow: (IPMN-L, IPMN-H, PDAC-L and PDAC-H). Statistical analysis was performed using ANOVA tests. Results IPMNs with high mi-R21 expression presented a negative/weak PTEN cytoplasmatic staining, with only few scattered positive cells, while IPMNs characterized by low mi-R21, had a moderate or strong cytoplasmic PTEN expression. This inverse correlation of miR-21 and PTEN expression was also observed in PDAC. However, we observed a significant difference comparing PTEN IPMN-L vs. PDAC-L (P=0.021), IPMN-L vs. IPMN-H (P=0.041) and all groups (P=0.037). Conclusion PTEN expression correlated with miR-21 in both invasive IPMNs and PDACs. Moreover, PDAC had significantly higher levels of miR-21 and lower levels of PTEN than IPMNs, suggesting that these biological characteristics might underline the better clinical outcome of IPMN compared to PDAC.