miR 26a

The expression levels of MicroRNA-26a and -24 turned out to be promising predictors of further clinical course in patients with glioblastoma [1].

Although pituitary neuroendocrine tumor is a malignant tumor, it can present as invasive growth in some cases. MicroRNA (miR)-26a has been found to be abnormally highly expressed in pituitary neuroendocrine tumor, indicating possible involvement in pathogenesis. As a known target gene of miR-26a, PLAG1 has abnormally low expression in pituitary neuroendocrine tumor. The correlation between miR-26a or PLAG1 expressional abnormality and occurrence of pituitary neuroendocrine tumor is still unknown, as is its association with invasiveness of pituitary neuroendocrine tumor.

pituitary neuroendocrine tumor tissues, including both invasive and non-invasive subtypes, were collected from the Neurosurgery Department Yantaishan Hospital, Yantai, Shandong, China, in parallel with normal pituitary tissues from postmortem autopsy. qRT-PCR was used to detect mRNA expression of miR-26a and PLAG1, while Western blotting was used to test PLAG1 protein expression. The correlation between miR-26a and PLAG1, and with pathological features, were analyzed. ROC analysis revealed the utility of miR-26a and PLAG1 in differential diagnosis of invasive/non-invasive pituitary tumors and in analyzing their effects on patient prognosis. RESULTS MiR-26a was remarkably upregulated in pituitary tumors, while PLAG1 was downregulated, especially in invasive pituitary tumors. miR-26a and PLAG1 had higher diagnostic values for differentiating between invasive and non-invasive pituitary tumors (AUC=0.889 and 0.818, respectively). Those patients with miR-26 overexpression and PLAG1 downregulation had unfavorable prognosis. miR-26 and PLAG1 are independent factors affecting patient diagnosis.

MiR-26a can facilitate occurrence of pituitary tumor and invasiveness, probably via inhibiting PLAG1 expression [2].

1)
Sippl C, Teping F, Ketter R, Braun L, Tremmel L, Schulz-Schaeffer W, Oertel J, Urbschat S. The influence of distinct regulatory MicroRNAs of the p15/p16/RB1/E2F pathway on the clinical progression of glioblastoma. World Neurosurg. 2019 Jul 24. pii: S1878-8750(19)32040-6. doi: 10.1016/j.wneu.2019.07.134. [Epub ahead of print] PubMed PMID: 31351207.
2)
Yu C, Li J, Sun F, Cui J, Fang H, Sui G. Expression and Clinical Significance of miR-26a and Pleomorphic Adenoma Gene 1 (PLAG1) in Invasive pituitary neuroendocrine tumor. Med Sci Monit. 2016 Dec 24;22:5101-5108. PubMed PMID: 28012286.