miR 9

miR-9-5p

Liu et al. investigated the diagnostic value of miR-9-5p for asymptomatic carotid artery stenosis (CAS) and its predictive value for future cerebrovascular events within 5 years. A total of 88 asymptomatic CAS patients and 86 healthy individuals were recruited. The expression level of serum miR-9-5p was determined by quantitative real-time polymerase chain reaction (qRT-PCR). The diagnostic value of miR-9-5p in CAS was assessed by a receiving operator characteristic (ROC) curve. The predictive value of miR-9-5p for the occurrence of cerebrovascular events was evaluated by the Kaplan-Meier method. The serum level of miR-9-5p was significantly decreased in asymptomatic CAS patients. ROC curve had an AUC value of 0.910, with the sensitivity and specificity of 80.7% and 87.2% at the cut-off value of 0.72, respectively. A total of 25 patients had cerebrovascular events during the 5-year follow-up, including 3 strokes and 22 transient ischemic attacks (TIAs). Kaplan-Meier survival analysis revealed that the low expression level of miR-9-5p was an independent factor closely related to the occurrence of cerebrovascular events. Serum miR-9-5p could be used as a new biomarker for the diagnosis of CAS, and the low expression of miR-9-5p is associated with poor prognosis [1)].

A study evaluated microRNA (miRNA) changes in cerebrospinal fluid (CSF) and their association with the occurrence of delayed cerebral ischemia (DCI) and poor functional subarachnoid hemorrhage outcome.

Forty-three selected miRNAs were measured in daily CSF samples from a discovery cohort of SAH patients admitted to Rigshospitalet, Copenhagen, Denmark, and compared with neurologically healthy patients. Findings were validated in CSF from a replication cohort of SAH patients admitted to Massachusetts General Hospital, Boston, Massachusetts. The CSF levels of miRNA over time were compared with the occurrence of DCI, and functional outcome after 3 months. miRNAs were quantified in 427 CSF samples from 63 SAH patients in the discovery cohort, in 104 CSF samples from 63 SAH patients in the replication cohort, and in 11 CSF samples from 11 neurologically healthy patients. The miRNA profile changed remarkably immediately after SAH. Elevated miR-9-3p was associated with a poor functional outcome in the discovery cohort ($p < 0.0001$) after correction for multiple testing ($q < 0.01$) and in the replication cohort ($p < 0.01$). Furthermore, elevated miR-9-5p was associated with a poor functional outcome in the discovery cohort ($p < 0.01$) after correction for multiple testing ($q < 0.05$). No miRNA was associated with DCI in both cohorts. miR-9-3p and miR-9-5p are elevated in the CSF following SAH and this elevation is associated with a poor functional outcome. These elevations have potential roles in the progression of cerebral injury and could add to early prognostication [2)].

1)
Liu H, Zhou J, Jiang W, Wang F. Analysis of the diagnostic and prognostic value of miR-9-5p in carotid artery stenosis. Bosn J Basic Med Sci. 2021 Apr 19. doi: 10.17305/bjbms.2021.5545. Epub ahead of print. PMID: 33974530.
2)
Bache S, Rasmussen R, Wolcott Z, Rossing M, Møgelvang R, Tolnai D, Hassager C, Forman JL, Køber L, Nielsen FC, Kimberly WT, Møller K. Elevated miR-9 in Cerebrospinal Fluid Is Associated with Poor Functional Outcome After Subarachnoid Hemorrhage. Transl Stroke Res. 2020 Apr 4. doi: 10.1007/s12975-020-00793-1. [Epub ahead of print] PubMed PMID: 32248435.