

Role of Decreased Expression of miR-155 and miR-146a in Peripheral Blood of Type 2 Diabetes Mellitus Patients with Diabetic Peripheral Neuropathy [Letter]

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Dear editor

I have read a research article entitled “Role of Decreased Expression of miR-155 and miR-146a in Peripheral Blood of Type 2 Diabetes Mellitus Patients with Diabetic Peripheral Neuropathy” by Hua Ji, YaTing Lu, Gui Liu, Xiaotong Zhao, Murong Xu, and Mingwei Chen. I would like to congratulate the author on this successful article and make a contribution. This study contributes to the identification of miR-155 and miR-146a as potential biomarkers for the diagnosis and monitoring of Diabetic Peripheral Neuropathy (DPN).¹

Although this study has advantages, this study also has several limitations that need to be considered in further research, in addition to those presented in the study. 1) This study used an observational study design, so the results cannot determine the cause and effect between miR-155 and miR-146a expression and the development of Diabetic Peripheral Neuropathy.² A longitudinal design may be better to evaluate changes over time.³ 2) This study did not consider confounding factors that could affect the expression of miRNA-155 and miRNA 146a such as medication history, diet, or smoking of the study participants. Some drugs can decrease miRNA-155 expression, such as certain anti-inflammatory drugs. Anti-inflammatories such as 3-Acetyl-11-Keto-Beta-Boswellic Acid (AKBA) and Dexamethasone (DEX) can decrease miRNA-155 expression. Both drugs can increase SOCS-1 (Suppressor of Cytokine Signaling-1) expression, which contributes to decreased miRNA-155 expression. In addition, both drugs can also decrease NF-kB activation, which affects decreased miRNA-155 expression.⁴ Increased vitamin D in the body can reduce miRNA-155 expression, so this can affect the results of the study. It is suspected that vitamin D reduces miRNA-155 expression by binding to the vitamin D receptor (VDR), then interacting with gene regulatory elements in DNA, which then affects the expression of genes that regulate miRNA-155 expression.⁵ Smoking can decrease miRNA-146a expression, because cigarette smoke can increase the production of reactive oxygen species (ROS), which damage various cellular components, including RNA and contribute to the decrease in miRNA-146a expression. Smoking also triggers an inflammatory response, involving the release of pro-inflammatory cytokines such as interleukin-1 beta (IL-1 β) and tumor necrosis factor alpha (TNF- α), which can decrease miR-146a levels.⁶

The conclusion of this study shows that decreased expression of miR-155 and miR-146a in the peripheral blood of patients with Type 2 Diabetes Mellitus (T2DM) is significantly correlated with the development of Diabetic Peripheral Neuropathy (DPN). This suggests that these microRNAs may serve as promising biomarkers for diagnosing and monitoring the development of DPN.

Disclosure

The author reports no conflicts of interest in this communication.

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