

Siglec-5 is a novel marker of critical limb ischemia in patients with diabetes

Ju-yi Li^{a,b,c}, Xiao-yan Yang^a, Xiu-fang Wang^d, Xiong Jia^b, Zhong-jing Wang^e, Ai-ping Deng^c, Xiang-li Bai^a, Lin Zhu^b, Bing-hui Li^f, Zi-bo Feng^f, Ye Li^a, Ling Wang^a & Si Jin^{a,b}.

- a. Department of Pharmacology, Hubei Key Laboratory of Drug Target Research and Pharmacodynamic Evaluation, School of Basic Medicine, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, China
- b. Department of Endocrinology, Institute of Geriatric Medicine, Liyan Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, China
- c. Department of Pharmacy, The central Hospital of Wuhan, Tongji Medical College, Huazhong University of Sciences and Technology, Wuhan Hubei, China
- d. Department of Pain, The central Hospital of Wuhan, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, China
- e. Department of Endocrinology, The central Hospital of Wuhan, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, China
- f. Department of Wound Repair, Liyuan Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, China

Abstract

Critical Limb Ischemia (CLI) is common but uncommonly diagnosed. Improved recognition and early diagnostic markers for CLI are needed. Therefore, the aim of our study was to identify plasma biomarkers of CLI in patients with type 2 diabetes mellitus (T2DM). In this study, antibody-coated glass slide arrays were used to determine the plasma levels of 274 human cytokines in four matched cases of diabetes with and without CLI. Potential biomarkers were confirmed in an independent cohort by ELISA. After adjusting for confounding risk factors, only plasma level of Siglec-5 remained significantly associated with an increased odds ratio (OR) for diabetes with CLI by binary logistic regression analysis. Receiver operating characteristic (ROC) curve analysis revealed the optimal cut-off points for Siglec-5 was 153.1 ng/ml. After entering Siglec-5, the AUC was 0.99, which was higher than that of confounding risk factors only (AUC = 0.97, $P < 0.05$). Siglec-5 was expressed in plaques, but not in healthy artery wall in T2DM patients. Elevated plasma Siglec-5 was independently associated with CLI in T2DM. Plasma Siglec-5 levels are implicated as an early diagnostic marker of CLI in T2DM patients and it may become a target for the prevention or treatment of CLI in diabetes.

Full text:

<https://www.nature.com/articles/s41598-017-11820-x#Abs1>

