

中文題目：穩定型心絞痛病人中 Trimethylamine N-oxide 濃度與冠狀動脈血管內皮功能異常及內皮前驅細胞之相關性

英文題目：**Trimethylamine N-oxide is associated with endothelial dysfunction and decreased endothelial progenitor cells in patients with stable angina**

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Background: The aim of this single-center study was to identify the relationship between the trimethylamine N-oxide (TMAO) level, circulating endothelial progenitor cells (EPCs), and endothelial function in patients with stable angina.

Methods: Eighty-one stable angina subjects who underwent elective coronary angiography were enrolled. The circulating EPC number and flow-mediated vasodilation (FMD) were measured to evaluate endothelial function. Plasma TMAO and inflammatory markers, such as high-sensitivity C-reactive protein (hsCRP) and interleukin-1 β (IL-1 β), were also determined.

Results: Patients with lower FMD had significantly elevated TMAO levels, fewer circulating EPCs, and increased hsCRP and IL-1 β concentrations. Plasma TMAO levels were positively correlated with the hsCRP, IL-1 β concentrations, and the coronary artery disease (CAD) severity. Additionally, they were negatively correlated with the circulating EPC levels and FMD. Increased TMAO (Std β = -0.212, p = 0.040), IL-1 β (Std β = -0.451, p < 0.001) levels, and fewer circulating EPCs (Std β = 0.291, p = 0.001) were independent risk factors for a low FMD. Patients with high TMAO levels or elevated SYNTAX scores were associated with more major adverse cardiovascular events (MACEs).

Conclusions: An enhanced plasma TMAO level was associated with fewer circulating EPCs, endothelial dysfunction, and more MACEs. These findings may partly explain TMAO-mediated atherosclerosis, which could be derived from TMAO-induced cellular inflammation and fewer circulating EPCs.

Keywords: trimethylamine N-oxide; gut microbiota; endothelial function; endothelial progenitor cells; inflammation