Coronary Artery Disease, Acute Coronary Syndromes, Acute Cardiac Care –
Acute Coronary Syndromes, Diagnostic Methods, Biomarkers

1365

Relationship between Lactobacillus and prognosis of acute myocardial infarction patients treated by percutaneous coronary intervention and its possible mechanism

J.-J. Cai[1], Y.. Liu[2], J. Wang[1], J.-X. Wang[1], Y. Wang[1], S.-B. Xu[1], Z. Cui[1], J. Gao[2]

[1] *Tianjin Medical University, Tianjin, China;* [2] *Tianjin Chest Hospital, Tianjin, China*
On behalf of Cardiovascular Institute

Background: Our previous study had found that the abundance of Lactobacillaceae in stool of acute coronary syndrome patients was significantly decreased. Experiments have confirmed that Lactobacillus has the effects of anti-inflammation, regulating blood lipids and improving cardiac injury after myocardial infarction.

Purpose: To explore the relationship between Lactobacillus and prognosis of acute myocardial infarction (AMI) patients treated by percutaneous coronary intervention (PCI) and its possible mechanism.

Methods: Patients with AMI who received emergency PCI from July 2017 to December 2018 in department of CCU were enrolled. Stool and blood samples were collected from all patients. The fecal 16S rDNA gene sequencing data from subjects were analyzed and subjects were categorized into Low, Medium and High level groups according to stool Lactobacillus measurements. The primary endpoints were major adverse cardiac events (MACE). Univariate and multivariate Cox regression were used to analyze the relationship between Lactobacillus and prognosis. Kaplan-Meier survival curve was used to characterize the association between the risk of MACE and Lactobacillus levels. Spearman correlation analysis and trend test were used to assess the relationship between Lactobacillus and Clinical index.

Results: A total of 254 patients were included in the analysis. The age was 65.90 ± 11.56 years old, and 152 (59.84%) were male. The follow-up time was 652 (548.25, 753) days. Multivariate Cox regression showed that patients with Lactobacillus >7.1 copies/g presented lower risk of MACE (HR=0.179, 95% CI 0.076–0.422, P<0.001), compared to patients with Lactobacillus ≤ 3.6 copies/g. This difference was statistically significant in STEMI (HR=0.210, 95% CI 0.082–0.542, P=0.001). Subgroup analysis indicated that Lactobacillus was a protective factor, whereas the value was more evident for male smokers over 60 years old and whose BNP over 1000 pg/mL. Spearman correlation analysis showed that Lactobacillus was negatively correlated with WBC, NEUT, hs-CRP, TNT, CK, CK-MB and BNP, while positively correlated with LVEF. With the increasing of Lactobacillus, WBC, NEUT, hs-CRP, TNT, CK, CK-MB and BNP showed a downward trend, while LVEF had an upward trend.

Conclusion: Lactobacillus can significantly reduce the risk of MACE in STEMI patients treated by PCI, especially for male smokers over 60 years old. The underlying mechanism may be related to the fact that Lactobacillus can reduce inflammatory reaction, lessen cardiac injury and improve cardiac function.

Correlation analysis between Lactobacill

Subgroup analysis in different patients