

Homocysteine, Folate and Vitamin B12 as Risk Factors for Acute Myocardial Infarction in a Southeast Asian Population

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Abstract

Introduction: Hyperhomocysteinaemia is an emerging risk factor for coronary artery disease (CAD) and most studies done to date are in Caucasian populations. We aimed to determine whether hyperhomocysteinaemia is a risk factor for acute myocardial infarction (AMI) in a Southeast Asian population comprising different ethnic groups and relate it to the traditional risk factors and plasma vitamin B12 and folate levels. **Materials and Methods:** This was a case-control study comprising 168 AMI patients and 141 controls with a median age of 55 years (range, 27 to 77 years), living in Singapore. Homocysteine was measured by fluorescence polarisation immunoassay and vitamin B12 and folate were measured by electrochemiluminescence immunoassay. Logistic regression analysis was used to test the association of homocysteine, vitamin B12 and folate with the occurrence of AMI. The study was approved by the Tan Tock Seng Ethics Committee. **Results:** We found that the odds of having AMI was higher for subjects with hypertension, smoking habit, lower plasma folate and vitamin B12 levels and non-Chinese ethnic group. On the other hand, plasma homocysteine level was not significantly associated with AMI. The baseline levels of plasma total homocysteine in both AMI patients and controls were higher than other studies (median values between 12 and 14 $\mu\text{mol/L}$). **Conclusion:** In our population, plasma total homocysteine levels were not associated with AMI but low plasma levels of folate and vitamin B12 were independently associated.

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Key words: Cross-sectional study, Plasma folate, Plasma total homocysteine, Plasma vitamin B12

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