Abstract


Serum total homocysteine and lipoprotein (a) levels in acute myocardial infarction and their response to treatment with vitamins.

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OBJECTIVE: To assess the relationship of serum total homocysteine (tHcy) and lipoprotein (a) [Lp(a)] levels with systemic hypertension, Diabetes mellitus and smoking as risk factors in patients with acute myocardial infarction (AMI) and changes in the former levels with vitamins supplementation. Study Design: An interventional study. Place and Duration of Study: Medical College for Women and Hospital (MCW & H), Dhaka, Bangladesh, from July 2008 to December 2009.

METHODOLOGY: Consecutive AMI patients were recruited from the Coronary Care Unit (CCU) at MCW &H, Dhaka. Blood samples were collected at inclusion (Patient-I0). They were given conventional treatments and prescribed vitamins (vitamins B6=25 mg, B12=2 mg and folic acid=2.5 mg) daily for 2 months. After follow-up, blood samples were taken again (Patient-II0). A group of 25 normal subjects were also included as controls. Serum tHcy and Lp(a) were measured by kinetic method and nephelometric method respectively.

RESULTS: Serum tHcy (μmol/L) and Lp(a) (mg/dl) levels were elevated in Patient-I0 that reduced in Patient-II0 after vitamins supplementation, but not to the normal control level. tHcy of Patient-I0 was 25.1 ± 4.7 μmol/L, of Patient-II0 was 20.1 ± 4.5 μmol/L and of controls 12.1 ± 3.3, p < 0.001. Lp(a) of Patient-I0 was 43.1 ± 15.2 mg/dL, of Patient-II0 was 35.6 ± 10.2 mg/dL, Control: 22.3 ± 5.2 mg/dL, p < 0.001. Elevated tHcy and Lp(a) levels were independent of the traditional risk factors (p > 0.1). However, in a significant proportion of patients tHcy and Lp(a) levels were reduced to control levels (tHcy: p < 0.001, Lp(a): p < 0.01).

CONCLUSION: These results indicated that tHcy and Lp(a) levels were possibly atherogenic risk factors independent of conventional risk factors. Since both tHcy and Lp(a) levels responded in a similar fashion, a common point of the metabolic and pathogenetic pathways of tHcy and Lp(a) may be influenced by the vitamins supplementation.

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