

Abstract

J Coll Physicians Surg Pak. 2011 May;21(5):266-70.

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

Mujibul Haq AM, M Giasuddin AS, Huque MM.

Department of Medicine, Medical College for Women and Hospital, Dhaka, Bangladesh.

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 ($\mu\text{mol/L}$) 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 $25.1 \pm 4.7 \mu\text{mol/L}$, of Patient-II0 was $20.1 \pm 4.5 \mu\text{mol/L}$ and of controls 12.1 ± 3.3 , $p < 0.001$. Lp(a) of Patient-I0 was $43.1 \pm 15.2 \text{ mg/dL}$, of Patient-II0 was $35.6 \pm 10.2 \text{ mg/dL}$, Control: $22.3 \pm 5.2 \text{ mg/dL}$, $p < 0.001$. 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.

PMID: 21575532