

## **Homocysteine as a Risk Factor for Vascular Disease**

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### **Abstract:**

Homocysteine is a sulphur-containing intermediate product in the normal metabolism of methionine, an essential amino acid. Folic acid, vitamin B12, and vitamin B6 deficiencies and reduced enzyme activities inhibit the breakdown of homocysteine, thus increasing the intracellular homocysteine concentration. Numerous studies have consistently found an independent relationship between hyperhomocysteinemia and cardiovascular disease or all-cause mortality. Our work aims to find an independent correlation between the elevated levels of homocysteine in blood and vascular disease. We studied 90 patients of young age (not more than 45 years old), 30 with coronary artery disease (old myocardial infarction) and 30 with old cerebrovascular disease) versus 30 individuals as controls. Patients were subjected to detailed history taking, thorough clinical examination and lab investigations including complete blood count, kidney and liver functions, blood sugar, lipid profile and plasma homocysteine; as well as ECG, echocardiography and/or coronary angiography, CT brain and Duplex study for the carotid and vertebral systems. We found that elevated plasma homocysteine levels in the studied patients showed a significantly high statistical correlation with ischemic heart disease as well as cerebrovascular stroke. In the study, male gender had higher homocysteine levels, same as diabetics, and those with valve lesions documented by echo study. Hyperhomocysteinemia showed high statistical correlation with high levels of fasting blood sugar, in both ischemic heart and stroke patients. But showed no correlation to neither of: Smoking, hypertension, family history, past history, cholesterol (LDL, HDL), triglycerides or ECG findings. We have concluded that elevation in the tHcy (total homocysteine) concentration is an important independent risk factor of cardiovascular and cerebrovascular disease.

***Key Words: Homocysteine – Vascular disease.***

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