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Assessment of haemostatic risk factors including fibrinogen β -448 arg/lys polymorphism in predicting myocardial infarction of the young

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Objectives

CAD is a major killer and is affecting a large number of Indians in the young age. A majority of these patients lack the conventional factors and genetic risk factors have been inadequately explored in our patients. The primary aim is to investigate the role of different haemostatic factors leading to a predisposition for arterial thrombosis in case of myocardial infarction.

Method

It was conducted in 100 young MI (50 years) cases, 8-10 weeks after stabilization of the acute attack. Unequivocal evidence of MI was obtained by ECG, cardiac enzymes, coronary angiography and stress test. Patients with diabetes and hypertension were excluded. 100 voluntary young blood donors acted as controls. Various investigations included were screening test for coagulation test, markers for thrombophilia, makers of fibrinolytic system, estimation of VWF, homocysteine levels, and fibrinogen β -448n Arg/Lys polymorphism.

Results

The conventional risk factors were present only in a small subset and smoking was found to be present in 45% of patients. Of the coagulation factors studied, elevated levels of fibrinogen and VWF:Ag were found to be associated with MI ($p < 0.05$). High fibrinogen levels correlate with the fibrinogen β 448 arg / Lys polymorphism ($p = 0.005$). However, when the MI cases were compared to normal controls, this polymorphism does not show a high preponderance in the patients ($p > 0.05$). Out of different thrombotic factors studied, prevalence of PS deficiency and APC-R was significantly greater in the patients than in control population. Hyperhomocysteinaemia accounts for nearly half of the MI patients in this study. Both t-PA and PAI – 1 were significantly elevated in the MI patients as compared to controls. 88% of the patients had the presence of > one risk factors in combination indicating that these factors may have a synergistic effect in progression to thrombosis.

Recommendations

It is recommended that in all cases of MI of young, besides routine tests for well known risk factors, thrombophilia markers, fibrinolytic system and presence of fibrinogen β -448 arg/lys polymorphism should be studied for correct management of such patients.