

Blood Coagulation, Fibrinolysis and Cellular Haemostasis

Evidence of Prolonged Disturbances in the Haemostatic, Hemorheologic and Inflammatory Profiles in Transmural Miocardial Infarction Survivors

A 12-month follow-up study

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(Thromb Haemost 2003; 89: 892-903)

Summary

Haemostatic, hemorheologic and inflammatory disturbances have been associated with acute coronary syndromes. Most knowledge is reported in cross sectional studies and are without time dependent evolution of these profiles.

The aim of this study was to evaluate, during the first year, the evolution of the haemostatic, hemorheologic and inflammatory profiles determined at hospital discharge in survivors with transmural myocardial infarction (MI).

Eighty eight (79 male; 9 female) mean age of 58 ± 11 years, survivors of a transmural MI were prospectively studied at discharge, 6 months and one year after the event. Haemostatic (protein C, antithrombin III and plasminogen activator inhibitor 1), hemorheologic (blood fluidity and components) and inflammatory profiles (polymorphonuclear leukocyte count and elastase) were determined using standard methodology.

The results of the study can be summarized as follows: (1) Protein C decreased ($p < 0.05$) over time while PAI-1 only varied significantly until 6th month. (2) Plasma viscosity and fibrinogen ($p < 0.001$) decrease over time, while erythrocyte aggregation ($p < 0.001$) and haematocrit increased. Whole blood viscosity did not vary. (3) Leukocyte decreased ($p < 0.001$) and elastase did not (4). Those patients with cardiovascular events ($n = 7$) had higher PAI-1 concentration ($p < 0.05$) and leukocyte count ($p < 0.01$), at discharge. (5) Left ventricle ejection fraction correlated significantly with plasma viscosity ($r = 0.35$ $p < 0.05$). The

results of this longitudinal study show dynamic modifications of the haemostatic, hemorheologic and inflammatory profiles during the first year of a transmural myocardial infarction. In addition, there are interrelations between them and the clinical profile that could help to explain the clinical evolution of this group of patients.

Key-words: Myocardial infarction, protein C, elastase, plasminogen inhibitor I and erythrocyte aggregation, longitudinal study.



Patrocínio FARMALUX

Plasma Fibrinogen Explains much of the Difference in Risk of Coronary Heart Disease Between France and Northern Ireland. The PRIME Study

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(*Atherosclerosis* 2003; 166: 103-109)

Abstract

The incidence of coronary heart disease is higher in Northern Ireland than in France. These differences have not been adequately explained. We have investigated the associations of plasma fibrinogen concentration and factor VII activity with the incidence of coronary heart disease in a prospective cohort study involving 10600 men aged 50-59 living in four regions (Lille, Strasbourg, and Toulouse in France, Belfast in Northern Ireland). Baseline fibrinogen and factor VII were measured in 9489 men free of coronary heart disease at entry (7167 in France and 2322 in Northern Ireland). Over 5 years of follow-up, 161 participants developed myocardial infarction (MI) or coronary death (100 in France and 61 in Belfast) and 151 developed angina pectoris (94 in France and 57 in Belfast). The risk of future coronary events was 1.9 times higher in Belfast than in France (95% confidence interval: 1.5-2.4), Baseline mean levels of fibrinogen were significantly higher in Belfast than in

France and they were higher in participants who experienced coronary events compared with those who did not in both countries. The age-adjusted relative risk of coronary heart disease associated with a rise of one standard deviation in fibrinogen level was 1.56 (95% confidence interval: 1.29-1.95, $P < 0.0001$) in the whole cohort. This association remained significant after adjustment for other cardiovascular risk factors (relative risk: 1.36; 95% confidence interval: 1.14-1.68; $P < 0.0001$). There was no clear geographical variation in factor VII and no significant association between factor VII levels and the risk of coronary events was observed. Classic risk factors explained 25% of the excess risk of coronary heart disease in Belfast compared with France, while fibrinogen alone accounted for 30%. These findings add to the epidemiological evidence that elevated fibrinogen is a major risk factor for coronary heart disease.

Key-words: CHD, Fibrinogen, Factor VII.