Haemostatic Cardiovascular Risk Factors: Differential Effects of Red Wine and Diet on Healthy Young Population

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Abstract

Two groups (21 healthy young male each) received either Mediterranean-type diet (MD) or high-fat diet (HFD) during 90 days. Between days 30-60, both diets were supplemented with 240 ml/day of red wine. MD alone was associated with: lower plasma fibrinogen (p=0.03), factor VIIc (p=0.034) and factor VIIIc (p=0.0057); higher levels of protein S (p=0.013); longer BT (p=0.017); and marginal increases in platelet serotonin aggregation and secretion after stimulation with epinephrine. Red wine supplementation in both diets, resulted in lower plasma fibrinogen (p=0.001) and factor VIIc (p=0.05), and in increased t-PA (p=0.01) and PAI-1 (p=0.0003). The effects of wine on antithrombin III (p=0.01) were divergent, with a decrease in the HFD group and an increase in the MD group. No effects of diet or wine were detected in plasma proteins C and S, BT or VWF:Ag. Wine supplementation also resulted in a significant increase in ex vivo platelet aggregation and secretion after stimulation with collagen (1 and 2 g/ml, p<=0.01). MD and moderate consumption of red wine have complementary, mostly beneficial effects on haemostatic CV risk factors. The longer BT in individuals on MD, independently of red wine, would denote less interaction of platelets with the vascular wall, which would be beneficial from the point of view of CV risk. However, the increased platelet aggregation/secretion after wine intake, possibly a "rebound" phenomenon, would be a risk factor for thrombosis.

Keywords: Cardiovascular risk factors, Coagulation factors, Mediterranean diet, Wine, Platelet function