Dyslipidaemia as a Poteintial Risk Factor for Venous Thromboembolism: A 12 Year Population Based Cohort of Cardiovascular Risk Free Subjects

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Background: Venous thromboembolism (VTE) and cardiovascular disease (CVD) have been implicated as having shared common risk factors. In the past years dyslipidemia has emerged as a potential risk factor for VTE. In order to identify the potential risk of an unfavorable lipid profile on the risk of future VTE (pulmonary embolism and/or deep vein thrombosis), we have analyzed the medical data base of the a large health care maintenance organization. We investigated the ability of the first ever documented lipid profile to predict a VTE or a CVD event among subjects with no history of CVD risk factors or prothrombotic states and compared their risk to a group of matched controls.

Methods: Using the Maccabi database we have analyzed individuals in the age range of 18-55 for men and 18-65 for women, who performed their first ever fasting lipid profile tests, while being free from any prior CVD or VTE events or potential risk factors. We than retrieved data on three reported event groups: the CVD event group, the VTE group and the healthy control group. Multiple exclusions were used in order to isolate the risk attributed to the lipid profile components for a VTE or a CVD event. Using a case-control study design, we compared the mean level of each lipid concentration between the patients and controls. For each VTE and CVD patient we matched 5 randomly chosen controls based on gender, age and number of years of follow-up and compared the mean lipid level for each group using blocked ANOVA.

Results: Included in the present analysis were 337,776 individuals with no prior history of CVD risk or a prothrombotic state for whom a first ever lipid profile was available. Of this cohort 332,036, were defined as healthy controls, 3,421 entered the CVD event group, and 2,319 entered the VTE event group. The respective female ratio was of 66, 30 and 73. The respective mean age for males was 40, 47 and 43, and 41, 50 and 43 for females. We found statistically significant differences in the levels of all lipids evaluated for women, and significant differences in the levels of HDL-C and triglycerides for men, with unfavorable levels in the VTE group. The absolute differences were minor for LDL and total cholesterol, and more significant for HDL, with a very siginificat difference regarding the triglyceride levels.

Conclusion: Higher levels of LDL cholesterol, total cholesterol and triglycerides and lower levels of HDL cholesterol were found in a group of individuals that developed VTE event with no prior VTE or CVD event as compared to matched healthy controls.