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Prediction of the population at risk of atherothrombotic disease--2018 update

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Objective: The Framingham Heart Study has determined that the people who develop some form of clinical atherothrombotic disease differ from those who do not by certain characteristics, not in kind, but rather in degree. This presentation will define the characteristics of the people who developed some form of the clinical atherothrombotic disease in my family practice of medicine between 4 November 1974 to 1 January 2018. The population characteristics of 869 individuals with an atherothrombotic disease will be described. Methods: The methodology is by chart review.

Results: The population with an atherothrombotic disease can be defined by the triad of cigarette smoking, dyslipidemia and hypertension. Dyslipidemia is defined in terms of the Cholesterol Retention Fraction [CRF, or (LDL-cholesterol minus HDL cholesterol)/LDL-cholesterol] and hypertension in terms of systolic blood pressure (SBP). A graph is generated with the CRF placed on the ordinate and SBP on the abscissa. The CRF-SBP plots of 83% of all (869) patients with atherothrombotic disease lie above a threshold line with CRF-SBP loci of (0.74, 100) and (0.49, 140) based on the precipitation method of HDL-cholesterol measurement but (0.62, 100) and (0.40, 140) if the enzymatic method is used. Of the patients with an atherothrombotic disease whose CRF-SBP plots lie below the threshold line, most are cigarette smokers. Only 6% (52/869) of atherothrombotic disease patients have never smoked cigarettes and have CRF-SBP plots below the threshold line--and their average of atherothrombotic disease onset is 72 years. An alternate method of examining these patients is to group the atherothrombotic disease risk factors into triads based on the presence or absence of cigarette smoking/dyslipidemia/hypertension. In this analysis, those who have never smoked cigarettes and have neither dyslipidemia nor hypertension represent 6% (54/869) of the atherothrombotic disease population and their average age of atherothrombotic disease onset is 72 years. The cumulative risk of atherothrombotic disease is highest when the CRF is 0.80 or higher and falls off as the CRF decreases. Cigarette smokers manifest atherothrombotic disease some 13 years earlier than do past cigarette smokers and 14 years earlier than never smokers. Hypertension is characteristic of older patients with atherothrombotic disease.

Conclusions: The population who develops the atherothrombotic disease is definable in terms of a triad of risk factors: cigarette smoking, dyslipidemia and hypertension.

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