Enhanced Prediction of the Population at Risk of Atherothrombotic Disease

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The Bowling Green Study

Introduction:

There are many tools that attempt to predict the population at risk of atherothrombotic disease (ATD). These tools are not well accepted and are often not accurate; most are not used at all. The Framingham Heart Study pioneered the prediction of the population at risk of ATD and still remains the basis upon which the current predictive tools are based. The predictive tool to be discussed in this paper is based upon the original fundamental tenets devised by the Framingham Study and is based upon the risk factor milieu of 870 people who developed some clinical form of ATD in the Bowling Green Study during the 4 November 1974-1 January 2018 timeframe.

Methods:

The author has performed a chart review to collect a database of the ATD risk factors of the 870 people who developed some form of clinical ATD during the study timeframe (4 November 1974-1 January 2018). The ATD risk factors include dyslipidemia, cigarette smoking, and hypertension, with some contribution by the very high blood sugar levels of uncontrolled diabetes. He has analyzed the risk factor data to create a tool that predicts the population at risk of ATD events with high accuracy.

Results:

Using the Cholesterol Retention Fraction (CRF) as a measure of dyslipidemia and systolic blood pressure (SBP) as a measure of hypertension, the author created a graph with the CRF on the ordinate and SBP on the abscissa. For any CRF and SBP grouping, CRF-SBP cohorts can then be generated for each of 48 CRF-SBP combinations and risk is assigned according to average age of ATD onset in each cohort. Highest Risk is assigned to those people whose cohorts are characterized by an average age of ATD onset of 64 years or less; intermediate risk by an average age of ATD onset of 65-74 years, and lowest risk, by an average age of ATD onset of 75 years and older. Patient outcomes are given in terms of average age of ATD onset, stratified by cigarette smoking status.

Conclusions:

Based on the characteristics of patients with known clinical ATD, the author has generated a graph that defines the ATD population with high accuracy.
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