PREDICTIVE MODEL OF CORONARY HEART DISEASE IN EGYPT

(A DISEASE WITH MULTIPLE RISK FACTORS)

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(M.Sc.) in Public Health

by

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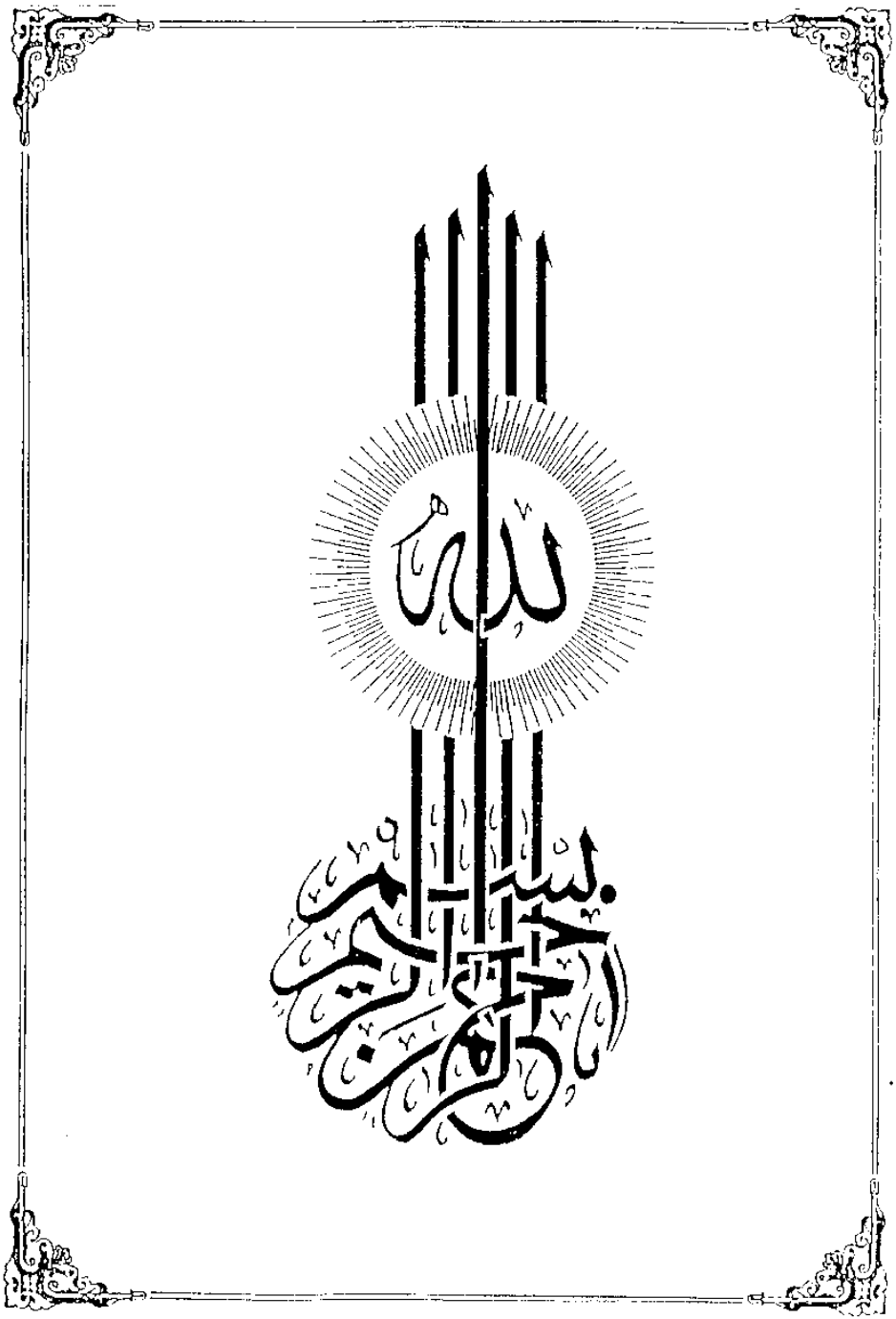

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ABSTRACT

The present study was carried on to determine the CHD risk factors in the Egyptian population and to construct a predictive model for development of the disease based on multivariate analysis. 119 cases and 121 controls, matched to the age , were selected from National Heart Institute and Ain-Shams University hospitals. The studied subjects were investigated for socioeconomic status, education, occupation , afternoon siesta, coffee consumption, smoking habit , hypertension, diabetes mellitus , family history and hypercholesterolemia. The multivariate analysis identified hypecholesterolmia, hypertension, diabetes mellitus, low occupational physical activity , lack of siesta and current cigarette smoking as independent risk factors with statistical weights of 11, 10, 6, 6, 5, and 1 respectively. Using a receiver operating characteristic (ROC) curve , we identified a total score of 17 as the best cutoff point to determine the high risk group. The risk scoring system had a high predictive accuracy , 87.3%, corresponding to the area under the curve. Future studies need to assess the risk scoring system in population based studies.

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ABBREVIATIONS

BMI	Body mass index
BP	Blood pressure
CAD	Coronary artery disease
CAPMAS	Central Agency for Public Mobilisation and Statistics
CHD	Coronary heart disease
CI	Confidence Intervals
CVD	Cardiovascular disease
ECG	Electrocardiogram
HDL	High density lipoproteins
IHD	Ischemic heart disease
LDL	Low density lipoproteins
OR	Odds ratio
TC	Total cholesterol
X^2	Chi-square

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Introduction

Cardiovascular diseases are responsible for one quarter of all deaths worldwide (**WHO, 1993**). Despite the fact that about half of the deaths in developed countries are due to cardiovascular diseases, numerically, the developing world experiences more CVD deaths than the industrialized world. In most of these countries coronary heart disease is the predominant type of cardiopathy. In the last two decades, there was a progressive increase in CHD cases all over the world and most of these cases were below the age of 65 years (**WHO, 1993**) ,which uncovers the great economic and social implications of the disease. As life expectancy increases and lifestyles change, all major CVDs will increase sharply in developing countries as communicable diseases are better controlled. It is predicted that the relative importance of mortality from CVDs compared with infectious and parasitic diseases, will become greater in all regions, particularly in countries where progress against the communicable diseases of childhood has been greatest.

In Egypt, cardiovascular diseases are now the main cause of death, being responsible for 42.5% of all deaths, while 20 years earlier they accounted for only 12.4% of mortality **(CAPMAS, 1990)** .

The positive view regarding this global epidemic comes from the evidence from various scientific disciplines that testifies to the preventability of CHD and the experience gained from the action taken by developed

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countries that succeeded in declining the mortality of coronary heart diseases by preventive programs modifying life style and other environmental risk factors **(Sytkowski et al, 1996)**. Furthermore, the huge evolution of new treatment modalities appeared less satisfactory in decreasing the mortality rates from CHD after the first attack . Thus , prevention remains the only choice that, in terms of cost effectiveness, is capable for altering the incidence and course of the disease **(Gillum, 1989)**.On that basis, many countries have identified the prevention of CHD as a national health priority.

Although the identified CHD risk factors seems to be universal, yet their impact on the disease may vary from one population to another. A large part of the interpopulation differences remained to be understood **(Yano et al, 1988)**.

Preventive strategies aimed at the general population have been effective in reducing coronary artery disease in developed countries. However the cost factor may compel most African countries to adopt strategies aimed at high-risk groups, the identification of which, together with that of other specific populations groups, should therefore be tackled urgently if the rising tide of coronary artery disease is to be blocked **(Muna, 1993)** .

Therefore, this study aims at establishing a predictive model for CHD in the Egyptian population that can help in identifying subjects at risk. Those should be submitted to a preventive approach in order to alter their risk profile.

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