

Chapter (3)

Low HDL-C Among Egyptians and other populations- relation to CAD

INTRODUCTION

The aim of this chapter is to outline the magnitude of the problem of low HDL-C in Egypt and other countries and to examine its prevalence among patients with coronary artery disease.

The practical implications of this chapter are threefold:

- First: comparison of prevalence figures in different countries and among different populations.
- Second: populations with high prevalence rates of low HDL-C are in need for intensive public awareness and education campaign.
- Third: the discovery of high prevalence rates of low HDL-C will underscore the need for effective therapy.

This chapter will cover three areas:

1. Prevalence of low HDL-C among Egyptians.
2. Prevalence of low HDL-C in other populations.
3. Prevalence of low HDL-C among Egyptian patients with CAD.

The sources of information in this review are from:

1. Published data of the Egyptian National Hypertension Project (NHP).
2. Results of published epidemiologic studies addressing the prevalence of low HDL-C in different countries.
3. Unpublished data of a recent survey examining the lipid profile among Egyptians with CAD.

PREVALENCE OF LOW HDL-C IN EGYPTIANS

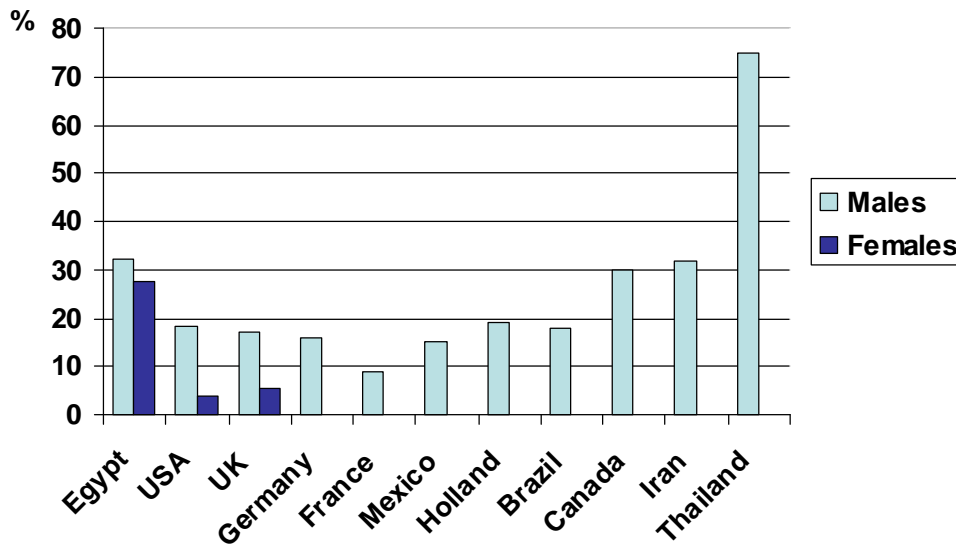
- Data were collected during the Egyptian National Hypertension project (NHP), a national hypertension survey in Egypt.
- A total of 2313 individuals were examined, 311 NT males, 443 NT females, 670 HTN males and 889 HTN females.
- Only data of normotensive subjects will be discussed. The mean values (mg/dl) for LDL-C, HDL-C, total cholesterol and triglycerides were: 115.3, 42, 183, 131.7 respectively.
- Levels of HDL-C were lower in males (39.9 mg/dl) than in females (43.7 mg/dl). Low HDL-C (<35 mg/dl) was present in 32.2% of males and 20.6% of females.
- Other lipid abnormalities in the NT Egyptians were an increase in LDL-C (>160 mg/dl) in 9.7%, increase in triglycerides (>150 mg/dl) in 27.5% and increase in total cholesterol (>240 mg/dl) in 8.4%.

PREVALENCE OF LOW HDL-C IN DIFFERENT POPULATIONS

Data from a number of epidemiologic studies showed that low HDL-C is not uncommon in the general populations (see figure).

- In the Framingham Offspring Study, 18.2% of men and 3.8% of women had a low HDL-C (<35 mg/dl).
- In the UK, the Health Survey for England 1998 indicated that 16.9% of men and 5.4% of women aged ≥ 16 years had low HDL-C (≤ 35 mg/dl).
- In the PROCAM Study conducted in Germany, the prevalence of low HDL-C (< 35 mg/dl) in men was almost 16%.
- The proportions of men below cut-off points 35 mg/dl ranged 7 to 9 % in France, 15% in Mexico, 15-23% in Holland (depending on age), 18% in the Rio de Janeiro area of Brazil, 30% in Canada, 32% in Iran and 75% in Thailand.
- Factors that influence these figures include the prevalence of CAD in the population and different study designs. There is sharply increased prevalence of low HDL-C in patients who have CAD.

Figure (3-1): Prevalence (%) of Low HDL-C (<35 mg/dl) in Different Populations



LOW HDL-C AND LIPID PROFILE AMONG EGYPTIANS WITH CAD

- The data reported in this section are from a recently completed study. The objectives of the study were to define the prevalence of low HDL-C and other lipid abnormalities among Egyptians with CAD and its association with other components of the metabolic syndrome.
- The lipid profile and its relation to CAD may be different in developing and socio-economically deprived communities from that in rich industrial countries. These differences might be due to variations in genetic background, environmental and life style pattern.
- Included in the study were only patients with complete records showing detailed lipid profile on a 12 hours fasting plasma sample and who are diagnosed as having angina pectoris (AP-chronic stable) or remote (at least 8 weeks) myocardial infarction and are not receiving statins or lipid lowering drugs.
- Files of 1000 consecutive patients with CAD satisfying the above inclusion criteria were reviewed.

Population Characteristics

- The age of the patients ranged from 17-90 years old with a mean age of 54 years.
- Mean values (mg/dL) for LDL-C, HDL-C, total cholesterol and triglycerides were 140.6, 41.5, 217, and 160.9 respectively.

Prevalence of low HDL-C and other lipid abnormalities

- Low HDL-C (<40 mg/dL) was present in 49.2% of CAD patients. Increased LDL-C (> 160 mg/dL) was present in 30.2%, increased triglycerides (> 150 mg/dL) present in 45% of patients.
- The pattern of lipid abnormalities differed according to gender and type of CAD. In males, the most frequent abnormality was a low HDL-C present in 55.4%, while increased LDL-C was present in 27.1%.
- In females, the commonest abnormality was increased LDL-C in 41.1%, low HDL-C was present in only 27.7% of women.
- Patients with MI had a lower level of HDL-C than AP patients with prevalence rates of 62.2% versus 40% respectively.
- Females with MI have the highest prevalence rate of increased LDL-C which was present in 51.7%, while males with AP have the lowest rates of increased LDL-C (24.7%).
- Male patients with MI have the highest rates of increased triglycerides (49.4%). In CAD patients there was a trend for increased levels of HDL-C with advancing age.

Prevalence of isolated low HDL-C

- Among patients with CAD, a completely normal blood lipid profile was present in 20.2% of male patients and 29.9% of females.
- Low HDL-C (< 40 mg/dl) as the only lipid abnormality was present in 21.4% of males and 7.6% of females.
- Isolated elevation of LDL-C (> 160 mg/dl) was present in 5.3% of males and 14.7% of females, while isolated increase in triglycerides (> 150 mg/dl) was present in 12.1% of males and 15.2% of females.
- The commonest type of lipid abnormality in CAD patients was a combination of two or more of these disorders. This was present in 41% of males and 32.6% of females.

Comparison of patients with low HDL-C and patients with normal HDL-C

- Patients with low HDL-C were characterized of being younger in age when compared with normal HDL-C group (53 vs 55 y p <.001), there was a higher prevalence of males (55.4% vs 44.6%, p <0.000).
- MI was more prevalent in the low HDL-C group (60.2% vs 39.8%, p <0.000).

CONCLUSIONS OF THE PREVIOUS STUDY

- In 1000 Egyptians with CAD low HDL-C was the most common lipid abnormality among male patients.
- Low HDL-C was present in all young males (< 30 Y) with CAD.
- Low HDL-C was more prevalent in patients with MI than in those with AP.
- Isolated low HDL-C with normal LDL-C was present in one third of CAD patients.
- CAD patients with low HDL-C compared with normal HDL-C were of younger age, commonly males, have high prevalence rate of MI and with lower rates of increased TG and TC.