

**DETECTION EVALUATION AND TREATMENT  
OF HYPERLIPIDAEMIA IN MALTA**

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## **Introduction**

The control of coronary artery disease depends primarily on its prevention at an early stage. Researchers worldwide generally agree that early prevention depends on the elimination or treatment of known modifiable risk factors, among which hyperlipidaemia occupies a central position.

## **Methodology**

### **Study 1**

#### **The Maltese Practitioners Attitudes to Hyperlipidaemia**

A survey served to assess the attitudes of Maltese practitioners (n=180) towards the recognition and management of Hyperlipidaemia. The practitioners were also asked to state their opinion towards the introduction of cholesterol measuring instruments into local community pharmacies.

### **Study 2**

#### **Comparative study of the Reflectance or dry-chemistry method (Reflotron<sup>R</sup>) with the Absorbance or wet-chemistry method in the analysis of total cholesterol concentration in blood**

A total number of 180 blood samples obtained from hospitalised patients, both inpatients and outpatients were used for this study. The venous blood samples which were collected in 5ml plain tubes were allowed to clot (to provide serum) and were then tested using first the automatic analyser (Baker-Eaton model), used in routine lipid analysis at St. Luke's Hospital, Malta. The blood samples were then tested for total cholesterol by myself using the Reflotron<sup>R</sup> instrument. The cholesterol values obtained by the two systems were compared and hence accuracy of the results was determined.

### Study 3

#### **The feasibility of introducing cholesterol measuring instruments in local community pharmacies**

Practising Maltese community pharmacists (n=100), all over Malta and Gozo were questioned by means of a survey, so as to determine the feasibility of providing a cholesterol testing service from local community pharmacies and also assess the training needs for community pharmacists to enable such a service to be provided.

#### **Results and Discussion**

##### **Study 1**

#### **The Maltese Practitioners Attitudes to Hyperlipidaemia**

The response rate was 40% (70 responses out of 180). All respondents diagnose hyperlipidaemia on the guidelines which were established by the European Atherosclerosis Society.

In general, most patients with mild hyperlipidaemia will prove to have common (polygenic) hypercholesterolaemia, familial combined hyperlipidaemia or hypertriglyceridaemia associated with obesity or alcohol overuse, while familial hypercholesterolaemia and remnant hyperlipidaemia are relatively commonly encountered causes of severe hyperlipidaemia, and roughly all occur in decreasing order to prevalence. Parameters studied were CHD risk, Pancreatitis risk, Plasma cholesterol and Plasma triglycerides.

Results show that CHD risk is greatest in familial hypercholesterolaemia and remnant hyperlipidaemia, whereas pancreatitis risk ranks high for familial hypertriglyceridaemia. Plasma cholesterol levels are high for familial hypercholesterolaemia and remnant hyperlipidaemia, whereas plasma triglyceride levels are highest for the latter condition only.

**Table 1 : European Guidelines for Management of Hyperlipidaemia**

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Plasma lipid value	Action
Cholesterol $<5.5\text{mmol l}^{-1}$	Optimal value: check again in five years.
Cholesterol $5.5 - 6.5\text{mmol l}^{-1}$	General dietary counselling and advice on other risk factors. Check again in 1 year.
Cholesterol $6.5 - 7.8\text{mmol l}^{-1}$	Specific clinical follow up, after dietary/risk factor intervention. Pharmacological therapy usually not required.
Cholesterol $>7.8\text{mmol l}^{-1}$	Specialist referral. Consider pharmacological intervention if diet fails.
Triglycerides $<3.0\text{mmol l}^{-1}$	Optimal value: check again in five years.
Triglycerides $>3.0\text{mmol l}^{-1}$	Specific drug therapy warranted if dietary advice fails, particularly when HDL cholesterol $<1.0\text{mmol l}^{-1}$

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The percentage responses obtained on the diagnosis of clinical signs and symptoms are given in Table 2.

**Table 2:** Table showing prevalence of clinical signs and symptoms

Clinical signs -		
Xanthelasma (lipid deposits around eyelids)	50%	(n=35)
Corneal Arcus lipidus	21%	(n=15)
Tendon Xanthomata (lipid deposits around hands, elbows, knees, ankles)	26%	(n=18)
Symptoms -		
Anginal pain	33%	(n=23)
Recurrent abdominal/pain (Secondary to pancreatitis and hepatomegaly)	4%	(n= 3)
Hypertension	13%	(n= 9)
Diabetes/Glucose intolerance	4%	(n= 3)

**Table 3:** Frequent risk combinations in Malta based on survey responses

	Hyperlipid- aemia + Diabetes	Hyperlipid- aemia + Diabetes	Hyperlipid- aemia + Diabetes
% incidence	80	67.5	85

When asked to state their opinion about the introduction of cholesterol measuring service in local community pharmacies, only 21% (n=15) of the respondents were against, whereas 69% (n=48) were in favour, provided there was trained personnel present and medical supervision to give advice on the preparation for the test, results, and education of patients on progress.

**Study 2: Comparative study of the Reflectance or dry-chemistry method (Reflotron<sup>R</sup>) with the Absorbance or wet-chemistry method (Automatic analyser) in the analysis of total cholesterol concentration in the blood.**

The Reflotron<sup>R</sup> cholesterol (sample serum) showed a good correlation with CHOD-PAD method on the Baker-Eaton instrument (sample

plasma). The median value of the differences of the test results was 0.4%. The results suggest that for routine purposes Reflotron<sup>R</sup> cholesterol provides results which are in good agreement with those obtained by the standardised wet chemistry method available at St. Luke's Hospital, Malta.

**Table 4:** Method comparison with regression analysis according to *Passing and Bablok* for 6 consecutive days

Method X	CHOD/PAD* on Bakr-Eaton instrument					
Method Y	Reflotron <sup>R</sup> instrument (serum)					
Correlation coefficient r	0.89	0.95	0.96	0.84	0.90	0.92
Slope	1.00	1.00	1.00	1.00	1.00	1.00
Y-intercept (mmol l <sup>-1</sup> )	0.104	0.103	0.103	0.104	0.105	0.104
Differences of means (mmol l <sup>-1</sup> )	0.091	0.10	0.097	0.13	0.096	0.09
Median of differences (%)	1.9	1.9	1.8	1.8	1.9	1.9
Median of differences (mmol l <sup>-1</sup> )	0.10	0.1	0.12	0.14	0.15	0.14

\*CHOD/PAD: Cholesterol oxidase/p-aminophenazone

### Study 3

#### Introduction of a cholesterol-measuring service in local community services

The response rate was 48%. Out of these 54% (n=26) were interested in setting up a cholesterol testing service in local community pharmacies and 71% (n=34) believe that the pharmacist should take this role as a professional member of the health care team. On the other hand 12% believe that it is the doctor's role to carry out such a task. 2% (n=3) have already established the service, whereas 18% (n=5) are either too busy or have no space in the pharmacy.

It was also established from the survey that community pharmacists require training in safe procedures for carrying out the test, in the correct handling of the equipment and the amount of counselling to be given both

for dietary advice and other lifestyle changes relating to smoking, weight and exercise.

## Conclusion

Some criticism has been expressed on the accuracy of some of the dry-chemistry equipment available. Such doubts could be allayed by the recommendation in the guidance document for testing involving body fluids, that pharmacists must co-operate in regular testing of blind serum and whole blood samples. Where a reading is marginally  $\pm$  the optimum level, compiled written guiding information must be supplemented by verbal explanation from the pharmacist. Early advice on diet and lifestyle for those with marginally high levels may achieve changes which will reduce the incidence of CHD, resulting in considerable savings to the Government Health Service.

In the past, the public has been encouraged to monitor their own weight; some patients are now also monitoring their blood pressure. Pharmacists have become involved in both of these activities and in the development of other diagnostic services such as pregnancy testing. The provision of cholesterol testing in community pharmacies is thus a natural part of the extension of the pharmacists' role in illness prevention and health promotion. Although it is not expected that every pharmacy will be equipped to carry out testing, it is hoped that a good number of pharmacies in different localities will be involved.

## References

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