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Research Article

Role of lipid profile in the short term prognosis of acute myocardial infarction in a rural hospital in South India

M.G. Binu[a,*], P. Manoj[b], C. Vinodini[c]

ABSTRACT

Background: Acute myocardial infarction is a major cause of morbidity and mortality, more so in Indians.

Aim: To establish the hypothesis that cholesterol level affects the short term prognosis of acute myocardial infarction.

Method: One hundred patients with acute myocardial infarction attending a rural tertiary care hospital were selected randomly and assessed for complications their lipid profiles were measured and mean values calculated and compared for complicated and uncomplicated groups.

Results: In the group without complications 79.1% had total cholesterol $<$250 mg/dl and 85.58% had non-HDL cholesterol $<$160 mg/dl. In the group with complications 69.7% had total cholesterol $>$250 mg/dl and 75.76% had non-HDL cholesterol $>$160 mg/dl. The mean non-HDLC values for the two groups were 124 ± 10 and 189 ± 8 respectively ($p = 0.08373$).

Conclusions: The study shows strong relation between the short term prognosis of acute myocardial infarction and baseline cholesterol values, especially non-HDL cholesterol.

Keywords: *Myocardial infarction, Total cholesterol, LDL cholesterol, Non-HDL cholesterol*

INTRODUCTION

Increased levels of total cholesterol (TC), non-HDL cholesterol and LDL cholesterol (LDL-C) disturbs the endothelial function, while normalization of lipid profile improves its activity.[1–4] Thus it can be expected, that hypercholesterolemia found in some patients at the onset of acute myocardial infarction (AMI) may unfavorably influence the course of the disease and consequently the patients who display normal lipid levels in AMI should have a more benign clinical outcome. To the best of our knowledge this matter has not yet been investigated in South Indian population. If the above hypothesis proves to be correct, it would be a further argument in favor of early administration of statins in AMI. Such patients should then be also considered as high-risk and subjected to more intensive management. This may also be a strong indication for primary prophylaxis with statin.

AIM OF THE STUDY

The aim of our study was to test the hypothesis, which states that patients in whom lipid levels are found to be above normal during the first hours of AMI have an unfavorable short term clinical outcome.

STUDY PATIENTS, METHODS

We included 100 consecutive patients (66 males) aged 66.2 ± 12 years (from 34 to 85), with confirmed AMI, who were admitted to hospital up to 24 h after the onset of clinical symptoms (from 0.5 to 20 h; average 6.5 ± 5.5). The exclusion criteria were: lipid lowering treatment in the month prior to AMI, lung, liver, kidney and thyroid diseases as well as cancer. Myocardial

[a]Associate Professor of Medicine, Fatima Institute of Medical Sciences, Kadapa 516003, Andhra Pradesh, [b]Associate Professor of Medicine, Sree Gokulam Institute of Medical Sciences, Venjarammoodu, Kerala, [c]Senior Assistant Surgeon, GH, Kuzhithurai, India.
[*] Corresponding author. *email: binumonglavil@hotmail.com*
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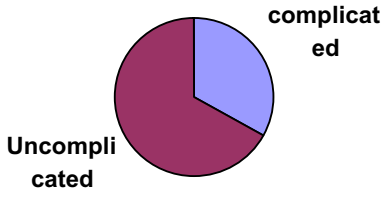
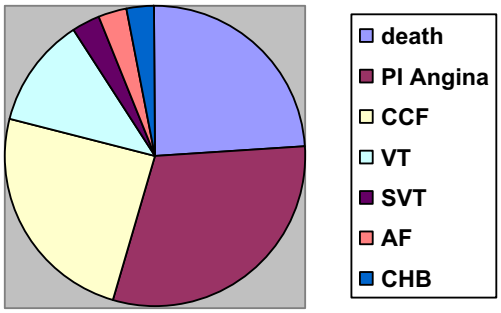
Table 1 Patient distribution into two groups.



Total	*Adverse events*	*No adverse events*
100	33	67
	Group-I	Group-II

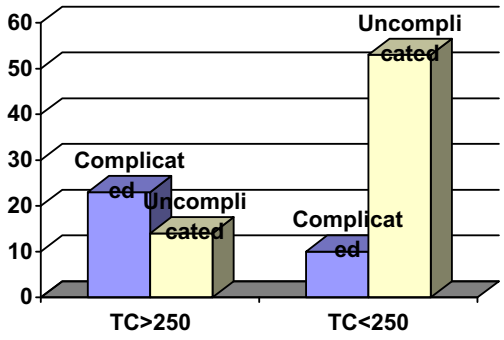
infarction was diagnosed based on typical clinical history and/or characteristic electrocardiographic changes and an increased level of biochemical markers of myocardial injury i.e. isoenzyme of creatine kinase CK-MB and/or troponin I. All the patients in the study received thrombolytic therapy. On the first day of hospitalization blood samples for lipid profile were taken in the morning, while fasting. Total cholesterol (TC), LDL-chol, HDL-chol and triglycerides (TG) were determined using enzymatic assay. Plasma LDL-chol was calculated by using the Friedewald formula in all patients in whom TG level did not exceed 400 mg/dl. The clinical course of AMI was considered complicated if there occured in-hospital death, recurrent acute myocardial ischemia, serious ventricular rhythm

Table 2 Adverse events.



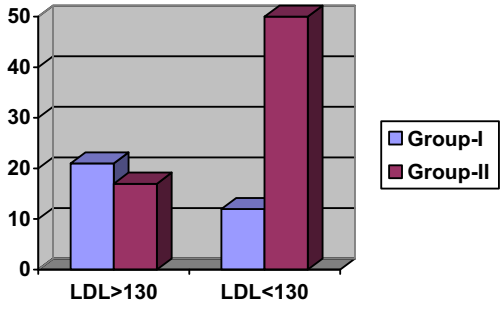
Adverse event	*Number of patients*
Death	8
Post infarction angina	10
Cardiac failure	8
Ventricular tachycardia after 24 h	4
Atrial fibrillation	1
Complete heart block	1
SVT	1

Table 3 Total cholesterol relations.



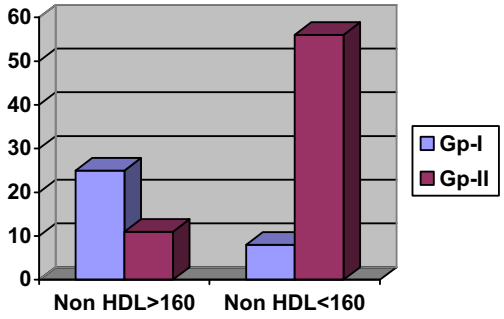
Total cholesterol (mg/dl)	*Group-I*	*Group-II*
>250	23	14
<250	10	53

Table 4 LDL cholesterol relations.



LDL (mg/dl)	*Group-I (complicated)*	*Group-II (uncomplicated)*
>130	21	17
<130	12	50

Table 5 Non-HDL cholesterol relations.



Non-HDL cholesterol (mg/dl)	*Group-I*	*Group-II*
>160	25	11
<160	8	56