

CARBOHYDRATE AND LIPID IN MYOCARDIAL INFARCTION

K.Montazemi*, pharm.D., DCLS; M.Daneshpajooch**, M.D.;
A.Zarrabi, **M.D. and J.Bahrami**, M.D.

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Summary

One hundred and twenty two blood samples from patients with AMI and ACI were analysed for glucose, cholesterol, triglyceride by colorimetric method, and for lipoprotein by millipore agarose-slide electrophoretic technique.

The results presented in this communication indicated that patients with AMI and ACI had higher abnormal GTT than that of the controls. The cholesterol and triglyceride levels were high in the blood of patients as well. It was also found that 70.3% of the patients had normal lipoprotein pattern, but 9.5% had type II, 8.1% type III, and 12.1% type IV. The results have further shown that type IV lipoprotein was the most common one in the patients studied.

Introduction

The relationship between the increase of blood lipoproteins and the early occurrence of atherosclerosis has been reported (8,17).

According to the classification of Fredrickson and Less, (7) lipid and lipoprotein abnormalities will usually be apparent in 5 different types which can readily be

* School of Public Health and Institute of Public Health Research, University of Teheran.

**National University of Iran, Even, Teheran, IRAN.

results are similar to those of Boyns and his colleagues (2) and also Datey (4) who found a close relationship between abnormal glucose metabolism with increase in age in patients with AMI and ACI.

However, Kingsbury (14) in this studies in patients with 35-37 years of age could not establish this direct relationship.

Although the findings correlate well to those of Boyns and his colleagues (2), but do not necessarily indicate a possibility of later development of diabetes mellitus.

Our findings concerning increased levels of cholesterol confirm our previous observations(3)as well as others (6,15,16,18).

High triglyceride concentrations were also found in patients with AMI and ACI (female: $P < 0.01$; male: not significant)(Table 3).

In this case, the increase levels of triglyceride may be due to high consumption of carbohydrate(rice and bread) which is almost a dietary habit of Iranian,as well as AMI and ACI.

Table 5 shows that among AMI and ACI patients with abnormal and normal glucose tolerance,there was no change in the prevalence of normal lipoprotein pattern whereas regarding the frequency of lipoprotein abnormalities there was marked GTT (8.1% versus 2.2%). Due to small number of patients found with normal GTT, it was not possible to analyse and compute the results statistically.

Table 6 shows the prevalence of lipoprotein type in patients as compared to healthy controls. As it can be seen the percentage of abnormal lipoprotein types is higher in females than in male patients.

The investigations have further shown that the type IV lipoprotein was the commonest one in our patients which is similar to other reports (1,5,10,13).

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Table 1. Distribution of Normal and Abnormal GTT in Patients with Acute Myocardial Infarction and Acute Coronary Insufficiency and Control

Age	Patients				Controls			
	No. Tested.	Normal GTT	Abnormal GTT	% Abnormal GTT	No. Tested	Normal GTT	Abnormal GTT	% Abnormal GTT
< 40	15	7	8	53.3	10	10	0	0.0
41-50	45	17	28	62.2	51	47	4	7.8
51-60	62	22	40	64.5	39	35	4	10.4
Total	122	46	76	62.29	100	92	8	8

Table 2 . Total Fasting Serum Cholesterol Levels in Patients and Controls
(mg/100ml)

Age Sex	Patients						Controls					
	Men			Women			Men			Women		
	No. Tested	Mean	S.D.	No. Tested	Mean	S.D.	No. Tested	Mean	S.D.	No. Tested	Mean	S.D.
40	11	243	40.2	4	263	35.77	1	207	-	9	226	33.80
41-50	33	258	67.47	13	239	68.75	24	204	51.6	27	216	43.66
51-60	40	231	55.14	18	251	49.99	32	219	47.93	7	221	45.50
Total	84	243	59.50	35	248	55.57	57	213	49.68	43	219	41.46
Range	141-440			154-437			89-350			127-289		

Table 3. Fasting Serum Triglyceride Levels in Patients with Acute Myocardial Infarction and Acute Coronary Insufficiency and Controls (mg/100ml)

Age Sex	Patients						Controls					
	Men			Women			Men			Women		
	No. Tested	Mean	S.D.	No. Tested	Mean	S.D.	No. Tested	Mean	S.D.	No. Tested	Mean	S.D.
< 40	11	142	79.9	4	207	74.65	1	150	-	9	148	83.82
41-50	33	184	90.2	13	197	79.23	24	146	78.15	27	131	52.11
51-60	40	159	89.83	18	223	110.87	32	138	80.46	7	187	70.36
Total	84	166	89.02	35	211	94.89	57	141	78.87	43	143	64.42
Range	42-465			77-376			29-464			65-325		

Table 4. Comparison of Fasting Cholesterol and Triglyceride Levels in Obese and Non-obese Patients with Acute Myocardial Infarction and Acute Coronary Insufficiency and Controls

Obesity Chol-TG	Patients						Controls					
	Obese			Non-Obese			Obese			Non-Obese		
	No. Tested	Chol (mg/100ml) mean	TG (mg/100ml) mean	No. Tested	Chol (mg/100ml) mean	TG (mg/100ml) mean	No. Tested	Chol (mg/100ml) mean	TG (mg/100ml) mean	No. Tested	Chol (mg/100ml) mean	TG (mg/100ml) mean
Men	39	258	183	45	226	152	35	218	142	22	205	140
Women	20	264	227	15	227	190	30	226	157	13	202	113

Table 5. Correlation Between Normal and Abnormal GTT and Lipoprotein Abnormalities in Patients with Acute Myocardial Infarction And Acute Coronary Insufficiency

Lipo Type	GTT		Abnormal GTT		Normal GTT		Total	
	No. Tested	%	No. Tested	%	No. Tested	%	No. Tested	%
Normal	52	70.3	32	71.1	84	70.5		
Type II	7	9.5	6	13.3	13	10.9		
Type IIIa	5	6.8	6	13.3	11	9.2		
Type IIIb	2	2.7	0	0.0	2	1.7		
Type IIII	6	8.1	1	2.2	7	5.9		
Type IV	9	12.1	6	13.3	15	12.6		
Total	74	100	45	100	119	100		

Table 6. Distribution of Lipoprotein Abnormalities in Patients with Acute Myocardial Infarction and Acute Coronary Insufficiency and Controls

sex LP Type	Patients				Controls			
	Men		Women		Men		Women	
	No. Tested	%	No. Tested	%	No. Tested	%	No. Tested	%
Normal	64	76.2	20	57.1	52	91.2	41	95.3
Type II	9	10.7	4	11.4	1	1.7	0	0.0
Type IIa	7	8.3	4	11.4	1	1.7	0	0.0
Type IIb	2	2.4	0	0.0	0	0.0	0	0.0
Type III	3	3.6	4	11.4	3	5.3	2	4.6
Type IV	8	9.5	7	20	1	1.7	0	0.0
Total	84	100	35	100	57	100	43	100

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