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ORIGINAL ARTICLE

THE EFFECT OF PHYSICAL ACTIVITY AND ATORVASTATIN ACTION ON LIPID PROFILE OF SEDENTARY AND NON SEDENTARY ALCOHOLIC MYOCARDIAL INFARCTION PATIENTS

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ABSTRACT: **BACKGROUND**: World Health Organization estimated 2 million deaths each year because of cardio vascular disease. The sedentary life style and increased lipid levels, obesity, alcohol, smoking and modernization of life styles contribute as risk factors for myocardial infarction. Framingham Study reviewed relationship between ischemic heart disease and physical activity.[1] Lack of physical activity cause more damage to the body. Manson reported 60%[2] of americans belonging to sedentary group with high risk of cardio vascular diseases. **METHODS**: The study is conducted for 8 weeks. The data for study was collected from 70 patients of known myocardial infarction with alcoholism and hyperlipidemias, some were sedentary and some were non sedentary who attended cardiology OP of King George Hospital, Visakhapatnam. **RESULTS**: Both the groups were given Tab. Atorvastatin 20mg/day, themean age group of the Patients is between 40 to 70 years andweight 60-85 kgs. The lipid levels are high as the age is increasing and the incidence of disease is high among age 56-60 years. As they are sedentary, least incidence is seen among the age group 40-45 years. The averageamount of alcohol consumed by these people is 80-150 ml/day. The lipid profiles are checked thrice in the entire study. From group A the mean total cholesterol is 217.867mg/dl, the mean triglycerides is 275.466mg/dl, the mean HDL is 40.96mg/dl, the mean LDL is 40.96mg/dl, and from group B the mean Total Cholesrerol is 190.033mg/dl, the mean triglycerides is 158.533mg/dl, the mean LDL is 110.233mg/dl, the mean HDL is 47.66mg/dl. The t-value and p-values are more significant and they showed reduction of LDL and triglyceride levels in nonsedentary life style people than sedentary lifestyle people. **CONCLUSION:** It is observed that the non sedentary hyperlipidemic alcoholic post MI patients who are administered with Atorvastatin has good therapeutic effect than the sedentary hyperlipidemic alcoholic post MI patients who are administered with Atorvastatin, there was a minimal increase of HDL levels. Patients having physical activity have a synergistic effect withatorvastatin drug to decrease the risk of cardio vascular diseases. This study suggests that there is an immense scope of an improvement in the risk factors related diseases by modifying our life style.

KEYWORDS: Myocardial infarction, sedentary, non sedentary life style, Atorvastatin, lipid profiles, Physical activity, Cardio vascular disease.

INTRODUCTION: Hyperlipidemia is one of the leading causes for cardio vascular diseases and deaths. Sedentary life style is associated with $1/10^{th}$ of the deaths of the world. It is a modifiable risk factor for CVD. There is a lot of evidence that increased physical activity which decreases LDL and triglyceride lipid profile which reduces risk of CVD.[3] Having physical activity reduces cholesterol, stress, blood pressure and in maintaining good health. Latest modernization of the world is

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associated with sedentary life have become globalized risk factors for ailments. When people have other risk factors like alcoholism and high lipid levels, it further increases the percentage of cardiovascular diseases. Excessive alcohol consumption increases triglycerides.[4] Framingham study reviewed the relationship between IHD and physical exercise.[1] Manson reported[(2)] 60% of Americans belong to Sedentary high risk group of CVD. Now-a-days HMG CO Areductase inhibitors are used more commonly to reduce the cholesterol levels and increase HDL levels. Measures for preventing CVD is to increase the physical activity and the use of HMG CO A reductase inhibitors will decrease the lipid levels.[5] "Move for health" is the slogan of WHO in 2002.[6] To achieve this, life style modification is to be implemented, we can save ourselves and our next generations from possible health hazards, and improve our life span.

METHODS: Study conducted on 70 male patients of known myocardial infarction associated with alcoholism Hyperlipidemia. Of which some are sedentary and some are non sedentary who attended Cardiology OP of King George Hospital, Visakhapatnam. 10 patients were aborted out of the study because of their irregularity and 60 were left. We have taken two groups of 30 each group A consists of 30 patients who are sedentary alcoholic taking 80 to 150 ml/day and have hyperlipidemia and group B consists of 30 patients who are non sedentary alcoholic taking 80 to 150 ml/day and havehyperlipidemia. Both were given Atorvastatin 20 mg/day at bed time and their lipid profiles were checked at 0, 4, 8th weeks of the study.

In the lipid profile Total Cholesterol, triglycirides, LDL, HDL, VLDL were estimated with auto pack kit manufactured by Bayer Diagnostics India Limited with over-night fasting, 10 ml of whole blood was collected for the test. Heparinized plasma/serum is used. Sample can be stored for a week at 2-8°C.

STATISTICAL ANALYSIS: The data analyzed by using student t-test and probability p-value were read from available tables.

The Statistics were presented in the form of mean ± standard deviation and percentages.

RESULTS: Two groups of 30 male patients each, one with sedentary and the other with non-sedentary life styleare alcoholic, post myocardial infarction, hyperlipidemia are taken and both groups were given TAB atorvastatin 20 mg/day at bed time. The patients who are between the age groups of 40 to 70years and with the weight of 60 to 85 kgs were selected for the study. The life style related diseases areassociated with increase in age mostly in sedentary people between the age group of 56 to 60 yearsand was seen less in 40 to 45 years. In non sedentarypeople the incidence of CVD is more in the age group of 61 to 65 years and was identified least in the age group of 40 to 45 years.The lipid values weretaken thrice in the study but only the 8th week values are considered.In group A the mean total cholesterol is 217.867mg/dl, the mean triglycirides is 275.466mg/dl, the meanLDL is 131.296mg/dl, the meanHDL is 40.96mg/dl, the mean VLDL is 49,259mg/dl, and regarding group B the meantotal cholesterol is 190.033mg/dl, the meantriglycirides is 158.533mg/dl, the mean LDLis 110.233mg/dl, the mean HDL is 47.666mg/dl, the mean VLDL is 29.433mg/dl. The LDL of non sedentary group is far more reduced than the sedentary group. The "t-value" and "p-value" were calculated for both the groups. There is high significant difference in values of two groups which are seen in t-values and p values because of increased physical activity and Tab Atorvastatin 20 mg/day.

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DISCUSSION: Hyperlipidemia and alcohol consumption are the two major risk factors for CVD which favor atherosclerosis[7].Cholesterol reduction is important for CVD.[8] HMG CO A reductase enzymeinhibitors have more effect on reducing LDL, triglycerides, and a minimal increase of HDL (6%) with few side effects.[9] Its half-life is more than other drugs of that group.[10] Increased cholesterol is an important risk factor for CVD[11].Atorvastatin has high efficacy compared to other drugs.[12] There is a general trend towards increased cholesterol level over a period of 20 years about 15mg/dl approximately due to change in life styles of people to sedentary life.[13] The physical activity influences the body in burning the fat. It also helps in producing the collateral circulation around narrowed heart vessels. It shows synergistic effect with drug atorvastatin to decrease the lipid levels more efficiently in non-sedentary patients than in sedentary patients. Physical activity has major beneficial effect in avoiding many health problems. So the slogan "MOVE FOR HEALTH" is given by WHO.[4] The drug is effective on both the groups.

CONCLUSION: I conclude from my study that physical activity has beneficial effects; it will keep the person fit. Physical activity to some extent decreases the lipid levels and a slight increase in the level of HDL in the non sedentary patients than sedentary patients. Consumption of alcohol is to be avoided.

We all should move towards a healthy and risk factor free lives by acquiring a non sedentary and active life style.

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DEMOGRAPHIC CHART AND DISTRIBUTION OF PATIENTS ACCORDING TO AGE IN GROUP – A

AGE DISTRIBUTION	FREQUENY	PERCENTAGE
40-45	1	3.3%
45-50	6	20%
51-55	3	10%
56-60	10	33.3%
61-65	5	16.6%
66-70	5	16.6%
TOTAL	30	100%

TABLE-1

DEMOGRAPHIC CHART AND DISTRIBUTION OF PATIENTS ACCORDING TO AGEIN GROUP - B

AGE DISTRIBUTION	FREQUENY	PERCENTAGE
40-45	2	6.6%
45-50	7	23.3%
51-55	5	16.6%
56-60	3	10%
61-65	10	33.3%
66-70	3	10%
TOTAL	30	100%

TABLE-2

THE STATESTICAL ANALYSIS OF GROUP A and GROUP B

LIPID PROFILE	MEAN		STANDARD DEVIATION		STANDARD ERROR OF MEAN	
	SEDENTARY GROUP –A	NON SEDENTARY GROUP-B	SEDENTARY GROUP -A	NON SEDENTARY GROUP-B	SEDENTARY GROUP-A	NON SEDENTARY GROUP-B
TC	217.86	190.03	29.09	24.28	5.31	4.43
TG	275.46	158.53	140.40	42.94	25.63	7.84
HDL	40.96	47.66	5.48	4.95	1.00	0.90
LDL	131.29	110.23	34.84	24.41	6.70	4.45
VLDL	49.25	29.43	21.42	8.32	4.12	1.52

TABLE - 3

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SIGNIFICANCE OF EFFICACY OF THE DRG AT 4TH WEEK student t –value and p- value

LIPIDS	T – VALUE	P -VALUE
TOTAL CHOLESTEROL	4.02	0.001
TRIGLYCERIDES	4.36	0.001
HDL	4.96	0.001
LDL	2.66	0.01
VLDL	4.69	0.001

TABLE-4

THE SIGNIFICANCE OF EFFICACY OF THE DRUG AT 8TH WEEK student t –value and p- value

VARIABLES	t-VALUE	p – VALUE
TOTAL CHOLESTEROL	6.89	0.001
TRIGLYCERIDES	2.56	0.013
HDL	-5.13	0.001
LDL	3.32	0.002
VLDL	4.62	0.001

TABLE -5

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