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Research Article

COMPARATIVE SERUM LIPID STUDY IN SMOKERS AND NON-SMOKERS SUFFERING FROM MYOCARDIAL INFARCTION

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ABSTRACT

Objective: Comparative study of lipids in smoker and non-smoker myocardial infarction (MI), patients.

Methods: Total cholesterol determined by diagnostic kit, that is, enzymatic CHOD-PAP, endpoint colorimetric method. Absorbance was measured at 506 nm by kinetic ultraviolet spectrophotometer which was proportional to the cholesterol concentration in the specimens.

Results: There were 41.46% of patients who were smokers with high total cholesterol (>200 mg/dL). The total cholesterol was found to be statistically significant when smokers and non-smokers were compared in different age groups ($p<0.05$) in urban, rural, and slum populations of Madhya Pradesh.

Conclusion: This prospective study of 2006 smoking emerged as a significant modifiable risk factor in MI patients.

Keywords: Lipid profile, Smoker and non-smoker of patients, Myocardial infarction.

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INTRODUCTION

India is going through epidemiological transition infections and nutritional diseases are receding as causes of adult mortality. While non-communicable diseases assume more menacing proportions. Serum cholesterol is significant. Biochemical marker for developing coronary artery disease (CAD) as elevated serum cholesterol level enhances fat deposition in blood vessels [1-3]. Elevated levels of blood lipoproteins such as low-density lipoproteins and decreased high-density lipoproteins have a direct association with CAD some of the risk factors are modifiable such as cigarette smoking, hypertension, elevated serum cholesterol, diabetes mellitus, and obesity [4,5,7]. While others are non-modifiable age, sex, family history, and genetic factors [6].

METHODS

In the present study, cases included 196 MI patients. Patients were admitted to the intensive care unit of the cardiology department of Hamidia Hospital, Bhopal (Madhya Pradesh). Proper consent was taken before the study, Fasting blood samples were collected from each patient within 48 h after the onset of symptoms at the time of admission. A 2 mL disposable syringe was used to withdraw the blood from any prominent vein of the hand by venipuncture. Blood is allowed to clot in a clean glass vial. The supernatant was transferred into a test tube and centrifuge I at 4000 rpm for 3–4 min to separate serum. Total cholesterol determined by diagnostic kit, that is, enzymatic CHOD-PAP, endpoint colorimetry. Single reagent method, absorbance was measured at 506 nm by kinetic ultraviolet spectrophotometer which was proportional to the cholesterol concentration in the specimens.

RESULTS

The prevalence of coronary heart disease (CHD) and coronary risk factors were studied in urban rural and slum populations. Smoking was the major modifiable risk factor that was found in 41.46% of MI patients. The study shows a comparison between MI smokers and non-smokers of different age groups.

Table 1 shows total cholesterol level was statistically significant between age groups of 56–70 years and 71–85 years. Furthermore, statistical value ($p<0.05$) was observed in comparison to non-smokers (41–56) years and smokers (71–85) years.

DISCUSSION

In this study, high total cholesterol in smokers indicated that the concentration of total cholesterol in the body was directly related to the smoking habit in MI patients. High total cholesterol in smokers is a strong risk factor for CHD. It was because high concentrations of carbon monoxide induce cholesterol and fatty acid synthesis.

Table 1: Total cholesterol in myocardial infarction patients according to smokers and non-smokers in mg/dL

Group	Smokers	Non-smokers	Smokers	Non-smokers	Smokers	Non-smokers	Smoker	Non-smokers
Age (Years)	25–40	25–40	41–55	41–55	56–70	56–70	71–85	71–85
Mean (T.C.)	242.66	217.51	201.14	194.82	244.85	188.20	240.00	180.00
S.E.	42.78	23.31	32.06	9.48	24.36	9.50	15.49	20.00

CONCLUSION

There is a need to create awareness of the direct adverse effects of smoking on cardiac cells not only in adults but also in all age groups. Smoking induces serum levels of total cholesterol as well as lipid-rich lipoproteins containing cholesterol.

AUTHORS CONTRIBUTIONS

Dr. B.S. Dangi and Dr. B.S. Yadav were involved in the design, analysis of the results, and implementation of the study, and Dr. V Pal was involved in writing and formatting the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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