Original Research Article

THE IMPACT OF FAST FOOD CONSUMPTION ON THE LIPID PROFILE, BMI AND BLOOD SUGAR LEVELS

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Abstract: In India smoking, alcohol consumption, sedentary life style and junk foods are risk factors that has increased the burden of cardiovascular disease. To evaluate and compare the lipid profile, BMI and blood sugar levels in vegetarian home food eaters and fast food eaters. Apparently healthy 300 males aged between 15-35 years were participants of our study. Out of them 150 vegetarian home food eaters formed control group, 150 fast food eaters formed study group. We observed over all highly significant effect of fast food in study group compared to control group. In our study we found that BMI, RBS and lipid profile was significantly increased with p value <0.001 in the study group. With regular consumption of fast food there is a derangement of lipid function and increased blood sugar leading to early obesity and ill health. Hence the habit of fast food consumption should be curbed at the earliest.

Key Words: BMI, fast food, lipid profile, RBS.

INTRODUCTION

The common conditions prevailing in our developing country India are Diabetes mellitus, hypertension, chronic kidney diseases, dyslipidemias etc. Smoking, alcohol consumption, sedentary life style and junk foods are the risk factors that have increased the burden of cardiovascular disease[1]. Body mass index [BMI] is used as an index of obesity in clinical practice and epidemiological studies. Increased BMI is associated with an increase risk of cardiovascular diseases and type 2 Diabetes mellitus[2]. It is often observed in the public debate over obesity that the widespread and easy accessibility of fast food restaurants and kiosks are related to an increasing obesity rates[3]. A step should be taken to create awareness regarding the risk factors for coronary heart diseases. People should be aware that urbanization and industrialization has changed the life style of a common man. The duration and degree of exposure to the risk factors have greater impact, leading to higher number of CHD cases resulting in increased morbidity and mortality compared with predicted demographic rates.[4]

The present mortality rates are the consequences of previous exposure to behavioral risk factors such as inappropriate nutrition (fast food habits), insufficient physical activity leading to overweight, central obesity and dyslipidemia. It is now well established fact that a persistently high cholesterol level can almost certainly precipitate a cardiac event such as CHD. It is clear that elevation of serum cholesterol is one of the factors which carry an increased risk for the development of myocardial infarction.

It is the level of low density lipoprotein (LDL) that is most directly associated with CHD, while very low density lipoprotein (VLDL) has also been shown to be associated with peripheral vascular disease (eg: intermittent claudication) than with CHD. High density lipoprotein (HDL) is protective against the development of CHD-the higher its mean level, the lower the incidence of infarction. Today, there is a vast body of evidence showing a triangular relationship between habitual diet, blood cholesterol, lipoprotein levels in coronary heart diseases.

With urbanization India is developing not only in terms of economy, financial status but also in ill health. Time and energy saving modes are adopted by working group to give the better performances in their respective field. This has lead to consumption of readymade and easily available fast food. This new food style is readily adopted by all age groups.

Frequent attractive media advertisements of fast food chains and its offers in places like KFC, Dominos, Pizza hut etc. have lead to a fashionable trend of consuming such readily available food stuffs which is deficient in many micronutrients and dietary fibers. Childhood obesity and adult obesity are considered amongst the prevalent metabolic diseases globally. The WHO has already declared obesity as a global epidemic constituting as one of the largest

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current health problems. It is observed that, about 80% of type 2 diabetes, 35% of ischemic heart diseases, 55% of hypertensive cases are due to obesity and overweight among adults.[5]

Fast food includes those food items, which can be prepared and served quickly. Nutritional analysis shows that generally fast foods are high in fat value specially saturated fat, energy density, fructose and glycemic index, but poor in fiber, vitamin A, vitamin C and calcium[6]. Consumption of fast food is increasing rapidly throughout the world. According to Zive,[7] cheese spreads, mayonnaise spreads etc are consumed in almost all fast food centers of our society like local community malls, fairs, hostels, schools and many other public places. In a study conducted by Manmohan Prakash, it was observed that most of the fast food is delicious but it is supposed to be dangerous to health and may cause coronary heart disease, hypertension, diabetes, cholesterol, cancer, gall bladder disease, liver damage, food poisoning, headaches, depression, gastritis etc.[8]

Few animal studies were done on fast food effect on lipid profile, considering fast food consumption as a factor in causing health problems in human beings. This present study was undertaken to study the impact of fast food consumption on the lipid profile, BMI and blood sugar levels.

To evaluate and compare the lipid profile, BMI and blood sugar levels in vegetarian home food eaters and fast food eaters.

MATERIALS AND METHODS
This study was conducted on 300 subjects, out of them 150 were vegetarian home food eaters, 150 were predominantly fast food eaters in the age group of 15-35 yrs. Our study was approved by the Institutional ethical committee and written informed consent was taken from all the subjects. This was an observational, retrospective, cross sectional and comparative study. At the time of selection of the study group (n=150) the individual was evaluated on the basis of family history of CHD, regular food habit with type of junk food consumption, history of smoking, pattern of life style, measurement of height and weight. Total number of cases in control group (n=150) was evaluated on the same criteria.

The fasting blood sample about 5ml blood was collected from all subjects under aseptic precautions. Serum Total cholesterol was measured by CHOD-PAP method[9], serum Triglycerides by GPO-TRINDER method[10] and HDL by Phosphotungstic Acid method[11] where as LDL and VLDL was determined by calculation method.[12] Fasting blood sugar was estimated by

glucose oxidase and peroxidase method and expressed in terms of mg/dl. All the tests were done on ERBA Chem-5 semi auto-analyzer within 1-2 hours after collection of sample in laboratory at Salgar Hospital in Gulbarga. Body mass index (BMI) was calculated by weight in kilogram divided by height in square meter.

RESULTS
Out of 150 controls, 52% were in the age group of 15-25 years and 48% were in age group of 26-35yrs and out of 150 study group 64% were in the age group of 15-25 years and 36% were in age group of 26-35yrs.

Table 1: Age wise distribution of the subjects

Age in years	Study group [n=150]	Control group [n=150]
15-25	64%	52%
26-35	36%	48%

Table 2: Comparison of the parameters in study group and control group.

Parameters	Study group [n=150]	Control group [n=150]	P value
BMI[Kg/m^2]	29.13±3.12	20.10±2.15	<0.001*
Total cholesterol	248.78±67.21	142.23± 25.18	<0.001*
S.Triglycerides [mg/dl]	174.87±91.13	97.48±37.24	<0.001*
HDL[mg/dl]	34.89±8.92	47.94±7.31	<0.001*
LDL[mg/dl]	198.32±10.76	117.16±21.31	<0.001*
VLDL[mg/dl]	38.74±5.76	21.32±9.21	<0.001*
RBS[mg/dl]	116.29±19.11	78.78±9.78	<0.001*

Results are presented in Mean ± SD, ***** indicates, P value<0.001 considered as highly significant.

DISCUSSION
The increasing rates of obesity and dyslipidemia is reported worldwide with associated history of smoking, junk food consumption, nil or low physical activity and above all family history of obesity that eventually leads to coronary artery disease at an early age of life. Our present study showed that the mean of calculated BMI is higher in study group compared to control group.

Table 2 shows the mean of BMI in study group is higher than control group. The results obtained were compared by student's unpaired t-test. BMI in study group is significantly higher than control group where the p value was <0.001. The rise of BMI may be an earliest predictive non-invasive marker in study group. In obesity the peripheral utilization of sugar is impaired following low plasma and tissue concentration of insulin and as a result there is increased lipolysis and decreased re-esterification takes place which increases plasma free fatty acids. The activity of lipoprotein lipase is becoming low in obese, consequently the plasma level of VLDL-C, LDL-C, Triglyceride are increased.[(10, 11)] In our study, total cholesterol,

triglyceride, LDL-C is significantly higher in study group compared to control group. The HDL-C in study group is decreased significantly as compared with control group and the p value is <0.001. The RBS in study group is increased significantly as compared with control group and the p value is <0.001

CONCLUSION

Almost everybody is aware that fast food or street food is generally unhealthy. Just because of low cost and faster availability people prefer to go to fast food center rather than eating home food. Working people and students prefer eating in fast food centers during their working hours as it saves their time. Hence people should be made aware of the deleterious effects of fast food on health and they should be motivated to get their lipid profile and blood sugar level done at least once in a year for early detection of dyslipidemias. Parents and teachers should emphasize on the importance of homemade, healthy, nutritious and hygienic fiber rich food.

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