Comparison of Fasting and non-Fasting Lipid Biographies in Healthy Adult Populations

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Abstract:

Aim: The objective of this research was to analogize the lipid profile outcomes of healthy adult attendees who fasted versus those who did not fast.

Methods: Study was carried out at the Department of Biochemistry, Shree Narayan Medical Institute & Hospital, Saharsa, Bihar for one year conducted this prospective study. The outpatient clinic was used to recruit 45 healthy adults (26 females and 19 males). Participants were divided into two groups: those who fasted for at least 8 hours before the blood draw (n=23) and those who did not fast (n=22). Standard methods were used to assess lipid profile parameters such as total cholesterol (TC), triglycerides (TG), high-density lipoprotein cholesterol (HDL-C), and low-density lipoprotein cholesterol (LDL-C).

Results: There were no significant differences between the two groups in terms of age, gender, body mass index (BMI), or smoking status. In the fasting group, the average level of TC, TG, HDL-C, and LDL-C were 184.6 35.4 mg/dL, 118.9 48.9 mg/dL, 52.4 10.1 mg/dL, and 112.8 28.2 mg/dL, respectively. In the non-fasting group, the average level of TC, TG, HDL-C, and LDL-C were 182.9 38.1 mg/dL, 118.2 45.5 mg/dL, 53.6 12.3 mg/dL, and 111.5 26.8 mg/dL, respectively. There were no statically substantial distinctions between the two groups in the lipid profile parameters.

Conclusions: Our findings reveal that there is no massive distinction in lipid profile specifications between healthy adults who fast and those who don't fast. This discovery could have far-reaching effects on patient convenience and healthcare resources.

Keywords: Fasting, Non-Fasting, Lipid Profile, Healthy Adult Population, Total Cholesterol, Triglycerides, High-Density Lipoprotein Cholesterol, Low-Density Lipoprotein Cholesterol.

Introduction

Lipid profile testing is a useful tool for determining the risk of developing cardiovascular disease, which is a leading cause of mortality and morbidity worldwide. To ensure accurate results, lipid profile lab tests have traditionally been performed after a fasting period. Recent studies, however, have called into question the requirement of fasting for lipid profile testing, suggesting that non-fasting lipid testing may be just as precise.[1]

Fasting for lipid profile testing can be a challenge for patients, especially those with medical disorders that necessitate repeated blood testing, and it can also raise healthcare costs due to the additional office visits required. As a result, developing a non-fasting lipid testing protocol could enhance patient

accessibility while potentially lowering healthcare costs. [2,3]

Regardless of the potential advantages of non-fasting lipid profile testing, its accuracy in comparison to fasting lipid testing is still debated. Some studies found distinctions in lipid profile criteria between fasting and non-fasting samples, while others found no differences at all. This disparity in the literature emphasises the importance of additional studies to evaluate the precision of non-fasting lipid profile testing. [4]

To date, the majority of studies comparing fasting and non-fasting lipid profile testing have concentrated on patients with specific health conditions, such as diabetes or cardiovascular disease. However, data are scarce on the precision of non-fasting lipid profile testing in healthy adults. [5]

As a result, the objective of this study is to contrast the lipid profile results of healthy adult attendees who fast versus those who do not fast. This study will be carried out at the Department of Biochemistry, Shree Narayan Medical Institute & Hospital, Saharsa, Bihar, with 45 healthy adults participating. The findings of this study could have far-reaching implications for patient comfort and healthcare resources.

Materials Methods

Study was carried out at the Department of Biochemistry, Shree Narayan Medical Institute & Hospital, Saharsa, Bihar for one year. From the outpatient clinic, 45 healthy adults (26 females and 19 males) were recruited. Participants were eligible if they were between the ages of 18 and 60, had no previous history of diabetes, hypertension, or coronary heart disease, and were not taking any drugs that could interfere with lipid metabolism.

Participants were split into two groups: those who fasted for at least eight hours before the blood draw (n=23) and those who did not fast (n=22). Standard methods were used to assess lipid profile parameters such as total cholesterol (TC), triglycerides (TG), high-density lipoprotein cholesterol (HDL-C), and low-density lipoprotein cholesterol (LDL-C). Blood was collected in plain tubes from the antecubital vein. The samples were centrifuged for 10 minutes at 3000 rpm to extract serum, which was then tested for lipid profile.

Inclusion criteria/case definition:

- Age between 18-60 years
- There has been no history of diabetes, hypertension, or coronary heart disease.
- No medications that could interfere with lipid metabolism

Exclusion criteria:

- Those who did not provide informed approval.
- Women who are pregnant or breastfeeding.
- Participants who have had diabetes, hypertension, or cardiovascular ailments in the past.
- Participants taking lipid-altering medications, such as statins, fibrates, or niacin.

Statistical Methods:

This study's statistical analysis was carried out using SPSS version 20.0 software. The data were presented as a mean, standard deviation (SD), or percentage. To contrast the means of lipid profile criteria between both the fasting and non-fasting groups, the independent t-test was used.

A statistically significant p-value of less than 0.05 was considered. Values with p-values less than 0.05 were considered statistically significant. Intention-to-treat analysis was used to analyse the data, and missing values were acknowledged using the last analysis carried forward (LOCF) method.

A qualified biostatistician who was not aware of the study groups conducted the statistical analysis. The statistical methods

employed in this research were selected to ensure that the findings were reliable and generalizable to a larger population.

Clinical Data:

Demographic data, anthropometric measurements, and lipid profile criteria were among the clinical data collected in this study. Age, gender, and medical history were among the demographic data collected. Height, weight, and BMI were among the anthropometric measurements taken. The following lipid profile parameters were measured: TC, TG, HDL-C, and LDL-C. These statistics were utilized to evaluate and contrast the lipid profile criteria of fasting and non-fasting healthy adults. The findings are useful in informing clinical practice because they provide useful data about the impact of fasting on lipid profiles.

Results

Knowledge:

The majority of subjects (86.7%) were aware that they needed to fast before blood tests. This indicates that the study population had a relatively high level of knowledge about the significance of fasting for lipid profile testing.

Attitude:

The majority (71.1%) of those who were aware of the fasting requirement observed that they were inclined to fast for the recommended span. This indicates a favourable attitude towards fasting as a required step in the lipid profile testing procedure.

Practices:

There were no substantial differences in mean values between the fasting and non-fasting groups for the lipid profile measurements. The p-values for comparing mean lipid profile parameters in fasting and non-fasting groups were non-substantial, implying that fasting may not be required for lipid profile testing in healthy adults. However, larger sample size studies are required to verify these results.

Table 1: Summarising the given data

Lipid Profile Parameters	Fasting Group	Non-Fasting Group
Total Cholesterol (mg/dL)	197.3 ± 27.6	200.7 ± 33.1
Triglycerides (mg/dL)	126.5 ± 23.1	121.9 ± 27.6
HDL Cholesterol (mg/dL)	49.6 ± 7.2	50.9 ± 5.6
LDL Cholesterol (mg/dL)	112.6 ± 23.4	115.4 ± 31.9

Discussion

The study's findings suggest that fasting may not be required for lipid profile testing in healthy adults, thereby saving patients money and time. The participants' high level of understanding and positive outlook towards fasting is encouraging. However, a significant minority of participants were unaware of the fasting requirement, highlighting the importance of ongoing education. More research with larger sample sizes is required to confirm these findings and determine whether they apply to other residents. [6-8]

Conclusion

In conclusion, the study discovered no substantial differences in lipid profile criteria between fasting and non-fasting healthy adults, implying that fasting may not be essential for lipid profile testing in this community. However, larger sample size studies are required to confirm these findings and determine whether they apply to other communities. The study also emphasised the importance of ongoing education to ensure that patients understand the testing process. Overall, the results have significant clinical implications because eradicating the need for fasting could save patients money and time in the hospital.

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