Nonfasting Lipid Profile May Suffice to Manage Dyslipidemia

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ABSTRACT

Patients with major mental illness and especially those who receive antipsychotic drugs are at increased risk of metabolic syndrome. Dyslipidemia is part of the metabolic syndrome. Dyslipidemia is associated with an increased risk of cardiovascular, cerebrovascular, and other diseases. A fasting lipid profile is traditionally ordered to determine the need for and to monitor lipid-lowering treatment. However, a recent study showed that fasting and nonfasting lipid levels, obtained from the same patients, almost identically predicted hard 3-year cardiovascular event risks; the risks with fasting and nonfasting levels were closely similar in various secondary analyses, as well. This supports the stance of major medical associations in the field to accept nonfasting lipid levels to guide the treatment of dyslipidemia in the primary and secondary prevention of cardiovascular and cerebrovascular disease events.

Key words: Cardiovascular disease, cerebrovascular disease, dyslipidemia, fasting lipids, metabolic syndrome, nonfasting lipids, primary prevention, secondary prevention

Patients with major mental illness, especially schizophrenia, have risk factors for the metabolic syndrome. Many psychotropic drugs, especially antipsychotics, increase weight and predispose to metabolic syndrome. Dyslipidemia is part of the metabolic syndrome and predisposes to hypertension, ischemic heart disease, stroke, Alzheimer’s disease, and other conditions. Lipid levels therefore need to be assessed regularly in patients at risk and primary prevention treatment instituted, where indicated.[1] Patients seldom visit psychiatrists in a fasting state; so, if a fasting lipid level is ordered, patients will need to make a second visit. Diabetic patients risk hypoglycemia if they fast unnecessarily. Given that most people are not in a fasting state across the course of the day, might it make more sense to obtain nonfasting lipid levels than fasting lipid levels? This could provide a more meaningful estimate of average triglyceride levels without much biasing the estimation of low-density lipoprotein cholesterol (LDL-C).

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How to cite this article: Andrade C. Nonfasting lipid profile may suffice to manage dyslipidemia. Indian J Psychol Med 2020;42:316-7.
In this context, the use of fasting vs nonfasting lipid levels to predict hard cardiovascular (CVS) outcomes in the same patients was for the first time investigated by Mora et al. [2] The sample was a post hoc prospective follow-up of a randomized control trial that included 8,270 of 10,305 patients in the Anglo-Scandinavian Cardiac Outcomes Trial-Lipid Lowering Arm (ASCOT-LLA). Of these, 6,855 patients had no prior history of CVS disease. The mean age of the sample was 63 years. The sample was 82% male. The mean body mass index was nearly 29. Smokers comprised a third of the sample. Fasting and nonfasting lipid levels were assessed four weeks apart.

The patients were followed for a median duration of 3.3 years, during which period 351 CVS events were recorded, including 212 major CVS events. Statistical analyses were adjusted for CVS risk factors. The authors obtained several important findings:

1. The mean LDL-C level was only 3–7 mg/dL lower in fasting relative to nonfasting patients, depending on whether it was estimated by the Friedewald or the Martin-Hopkins equation. The mean triglyceride level (124 vs 159 mg/dL), expectedly, was modestly lower in the fasting state.

2. The hazard ratio (HR) for incident coronary events per 40 mg/dL increase in Friedewald LDL-C was 1.28 (95% CI, 1.07–1.55) for fasting vs 1.32 (95% CI, 1.08–1.61) for nonfasting LDL-C levels.

3. In the primary prevention subgroup, the HR for incident coronary events per 40 mg/dL increase in Friedewald LDL-C was 1.37 (95% CI, 1.11–1.69) for fasting and 1.42 (95% CI, 1.13–1.78) for nonfasting LDL-C levels.

4. The HRs associated with fasting vs nonfasting levels were also similar in analyses in which LDL-C was calculated using the Martin-Hopkins equation in place of the Friedewald equation.

5. In other secondary analyses, the HRs associated with fasting vs nonfasting levels were likewise similar for high-density lipoprotein (HDL) cholesterol, total cholesterol, triglycerides, non-HDL cholesterol, and other cholesterol measures for other CVS events, and in different treatment arms in the study.

6. There was an almost 95% concordance for fasting vs nonfasting levels in classifying patients into appropriate CVS disease risk arms.

**In summary,** fasting and nonfasting lipid levels yielded almost identical results in this prospective evaluation of CVS event risk in elderly, overweight adults who were followed for approximately 3 years. These findings suggest that it matters little whether fasting or nonfasting lipid levels are examined for the assessment of CVS risk and for the initiation of lipid-lowering therapy for prevention, including primary prevention, of CVS events.

**PARTING NOTES**

The suggestion to accept nonfasting lipid levels is not new [3]; however, this [2] is perhaps the first study to evaluate the association between fasting vs nonfasting lipid levels on hard CVS outcomes in the same patients.

The use of nonfasting lipid levels for the initiation of lipid-lowering treatment in primary and secondary prevention has been endorsed by the American College of Cardiology, the American Heart Association, and other organizations. [4] A word of caution: if the patient has had a meal, the clinician must confirm that the meal was not high in fat content because such a meal could result in falsely high-lipid levels. Finally, what is stated here applies to lipid profile estimation for the general management of dyslipidemia; if the reason for obtaining a lipid profile is different, a fasting profile may be necessary [5].

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

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