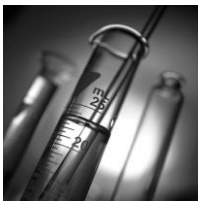
pathlab



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Non-Fasting Lipids

In the majority of patients, non-fasting blood samples for lipids is the preferred specimen, providing similar clinical value to fasting samples for screening for CVD risk, and in most patients for monitoring. Screening for diabetes, using HbA1c is also performed on a non-fasting sample.

Key points:

- Screening for cardiovascular risk assessment by the Framingham formula (or related calculations) uses the Total Cholesterol/HDL ratio. This ratio is not affected by food intake.
- In most patients, the increase in triglycerides after food intake is small, about 0.3 mmol/l. Patients with high triglyceride levels have poor lipid clearance and may be at increased CVD risk
- Monitoring lipid lowering therapy is based on LDL levels. LDL is calculated from the other lipid results. The calculation is not valid when triglycerides are > 4.5 mmol/l, these patients will need a follow-up fasting sample.
- In high risk patients, treated to very low LDL levels, a fasting sample is preferable.

Background information:

Total Cholesterol and LDL decrease by as much as 0.2 mmol/l and HDL by around 0.1 mmol/l for about 3 – 4 hours after a meal. The Total Cholesterol / HDL ratio does not change. The main reason for using fasting lipid samples is historic. Most population studies and statin trials have used fasting values; fasting values became "the norm". A meta-analysis of 20 trials showed no difference in predictive power for CVD events using non-fasting samples.

LDL is calculated using the Friedewald equation.
LDL = Total Cholesterol – HDL – (Triglycerides / 2.2). Following food intake, triglycerides increase and the calculated LDL decreases. In most patients triglyceride increase by no more than 0.3 mmol/l and the resulting decrease in calculated LDL is insignificant. When triglyceride level is 2.5 mmol/l, the error is about 0.5 mmol/l. While this error is still fairly small, in patients on intensive statin therapy targeting low LDL levels, fasting samples may be preferable.

A minority of patients clear their lipids slowly; they typically have low HDL and elevated triglycerides while fasting, with further increase in triglycerides after meals. In these patients, non-fasting triglyceride levels may be even better predictors of future CVD events.

Summary:

Non-fasting lipid levels are appropriate for the majority of patients.
Consider fasting lipids in patients receiving intensive statin therapy with triglycerides > 2.5 mmol/l
Consider fasting lipids in patients with triglycerides > 4.5 mmol/l

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CLINICAL UPDATE

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