Age, gender, and family history can contribute to cardiovascular disease (CVD). So, too, can poor diet, lack of exercise, and smoking. However, smoking makes the single most significant contribution to increased risk of CVD in HIV-positive patients, particularly men, independent of other risk factors.\(^1\)

Data from several studies confirm there is an association between greater duration of HAART and increased risk of CVD,\(^2,3\) which may be exacerbated by ARV drug effects on lipid levels and insulin resistance.\(^4\)

ACTG 5142 examined the metabolic effects of efavirenz (EFV)- or lopinavir (LPV/r)-based regimens combined with two NRTIs, and demonstrated minimal differences in non-HDL lipid parameters between EFV and LPV/r.\(^5\) The frequency of lipoatrophy was also demonstrated to be lowest in NRTI-sparing and tenofovir (TDF)-containing regimens.\(^5\) [The use of NRTIs, stavudine (d4T) in particular, has been linked to the development of lipoatrophy.\(^6\)]

**Clinical Management Recommendations**

- Assess the global risk of CVD
- Establish lipid goals (>HDL-C, <TC, LDL-C)
- Encourage lifestyle changes
- Prescribe lipid-lowering drugs
- Prescribe ACE inhibitors, where appropriate

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ALGORITHM FOR MANAGING LIPID DISORDERS AND CVD RISK IN HIV-POSITIVE PATIENTS ON HAART

1. Obtain fasting lipid profile prior to starting HAART and within 3-6 months of starting new ARV regimen†

2. Count number of CVD risk factors and determine level of risk; if ≥ 2 risk factors, perform a 10-year risk calculation

3. Intervene for modifiable non-lipid risk factors, including diet and smoking

4. If above the lipid threshold based on risk group despite vigorous lifestyle interventions:
   - Consider altering ARV regimen (with virologic suppression as the overriding consideration)
   - Consider lipid-lowering drugs

† Desirable lipid profiles are: TC <200 mg/dL, with LDL-C <100 mg/dL, triglycerides <150 mg/dL, and HDL-C >60 mg/dL.
‡ Use of lovastatin and simvastatin is contraindicated with all protease inhibitors.

LDL-C ≥100mg/dL or triglycerides 200-500 mg/dL with elevated non-HDL-C: STATIN‡ (Alternative: FIBRATE or NIACIN)

Triglycerides > 500 mg/dL: FIBRATE (Alternative: NIACIN OR FISH OIL)

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