Based on the patient's risk score, the patient is not at their LDL goal. Additionally, they have an elevated Lp (a). The "Moderate Risk" Lp-PLA2 result indicates that rupture prone plaque is present and the inflammatory phase of atherosclerosis is active. Recommend treatment to lower LDL. All lipid lowering therapies, including statins, vitamin B-3 (niacin) and omega-3 fatty acids (fish oils), are proven to reduce cardiovascular events and Lp-PLA2 levels.

Low Vitamin D levels are independently associated with all-cause and cardiovascular mortality. Vitamin D levels <15 ng/DL doubles the risk of heart attacks, stroke, or other cardiovascular problems within two years. Men with low Vitamin D levels are at twice the risk of having a heart attack, and the severity of the heart attack increases as well. Daily supplements of up to 2,000 IU should be considered.

The HDL2b subclass is the most efficient particle for reverse cholesterol transport (RCT) and thus the most protective of HDL subclasses. Low levels of HDL2b are correlated with 2 - 3 fold increase in cardiovascular disease risk and have been shown to predict progression of coronary atherosclerosis and disease severity. Low levels are also a risk factor for CAD even in patients with normal cholesterol. Increasing HDL2b will aide in reversing or slowing down the progression of heart disease. This test serves as an excellent marker of the effectiveness of patients exercise programs. In addition to exercise, Niacin and improved diet have been shown to increase HDL2b. Fenofibrate will increase total HDL, but has minimal effect on HDL2b.

First Priority: Lower LDL

Consider secondary causes if possible:
- If present treat: hypothyroidism, diabetes / insulin resistance

Dietary therapy: NCEP TLC diet
- If overweight target 5 to 10% reduction in body weight

If LDL exceeds NCEP drug initiation level or if patient is at very high risk start drug therapy:
- Drugs of choice: statins (especially rosuvastatin, simvastatin or pravastatin which do not raise Lp (a))
  - Select agent and initial dose based on %LDL reduction needed to achieve goal
- Alternative Drugs
  - Ezetimibe
  - Niaspan 1 to 4 grams qD (preferably preceded by 82 mg of aspirin to prevent flushing), which also lowers Lp (a).
  - Resins
  - Fenofibrate (which also lowers Lp (a))

If unable to achieve goal on monotherapy consider combination therapy:
- Statin plus ezetimibe
- Statin plus fenofibrate (NOT gemfibrozil)
- Statin plus resin
- Statin plus niaspan
- Triple therapy

Second Priority – Lower Lp (a)

If patient is an Afro-American no treatment needed
Consider secondary causes if possible:
- If present treat: hypothyroidism, microalbuminuria / proteinuria in diabetes
  - Thyroid hormone replacement to normalize TSH if hypothyroid
  - ACE / ARB therapy in diabetics with microabluminuria / proteinuria
- Rule out factitious influences: acute phase response

Lifestyle / non-pharmacological intervention:
- Moderate alcohol consumption (equivalent of ~2 ounces pure EtOH per day) if not contraindicated
- Aspirin 81 mg qD if not contraindicated

- Restriction of dietary trans-fatty acids (which will also lower LDL)

Drug therapy:

- Niaspan 2 to 4 grams per day (preferably preceded by 81 mg of aspirin to prevent flushing), which will also lower LDL
- Omega-3 fatty acids 8 to 12 grams per day
- Fenofibrate (which will also lower LDL)

Alternate approach to lowering Lp (a) is to lower the LDL below current NCEP guidelines (Lp (a) loses predictive value if LDL <80 mg%).

If the patient is on a statin consider the use of rosuvastatin, simvastatin or pravastatin, which do not raise Lp (a).

Apolipoprotein E

The presence of one E4 allele indicates a strong predisposition toward cholesterol hyperabsorption and these patients usually respond very well to diet and medications that affect cholesterol absorption. The presence of a single E4 allele is associated with 26-53% increased risk for CHD in men and a 99% increased risk for CHD in women. A more aggressive approach to CHD risk factor modification might be appropriate.

A single allele is also associated with 2.2 – 4.4 times increase in the risk of developing Alzheimer's Disease compared to the general population, especially in diabetics and African Americans. It would be appropriate to treat other known risk factors for Alzheimer's Disease, such as hypertension, hyperlipidemia (especially an elevated Lp (a)) and diabetes more aggressively. It should be noted that statin use, especially lovastatin and pravastatin, decrease the risk of developing Alzheimer's Disease by 63-73%, an effect not seen with other lipid lowering therapy. Aspirin once daily has been shown to decrease the incidence of Alzheimer's Disease by 13%. Increased physical activity, increased cognitive activity and a diet rich in omega-3 fatty acids have also been associated with reduction in the incidence of Alzheimer's Disease.