CHAPTER V  SUMMARY AND CONCLUSION

CVD is multifactorial in etiology. Hundreds of recognized risk factors have been associated with CVD. Recently, evidence supports a central role for inflammation in all phases of the atherosclerotic process, from initiation of lesion and its progression, subsequently, the atherosclerotic complications. Hence it is essential to diagnose the complications with multi markers approach. Statins are widely used as lipid-lowering drugs in patients with CVD. After proven its efficacy in both primary and secondary prevention studies, these agents remains underutilized in several settings. In this investigation, anti-inflammatory properties of atorvastatin have also been investigated. The data obtained from the present study support the following conclusions (fulfilling the general and specific objectives of the study).

- The results of the present study suggest that the elevated level of serum concentrations of hsCRP, fibrinogen, TNF-α and IL-6 serves as an apprehension or indicator of either chronic inflammation or CVD. This may assist in identifying patients at high risk for a first cardiovascular event who might otherwise be missed by lipid screening alone. The data also suggest that the higher levels of hsCRP predict vascular risk even when lipid levels are normal or low. It may be useful for physicians to routinely check for elevated hsCRP levels in these populations for risk stratification. This prognostic information may aid in providing the appropriate levels and duration of close monitoring.

- The finding of the present study advocate that elevated levels of TC, TG, LDL cholesterol, non-HDL cholesterol, apo B and Lp(a) promotes CVD, similarly, decreased levels of apo A-I are associated with the development of CVD. It is also support the hypothesis that uric acid is an independent risk factor in patients at high cardiovascular risk. In addition, the present study shows that uric acid has positive correlation with inflammation.

- With regard to lipid ratios, the data of the present study is consistent with prior reports that the ratio of TC to HDL cholesterol, LDL cholesterol to HDL
cholesterol, TG to HDL cholesterol, non-HDL cholesterol to HDL cholesterol, apo B to apo A-I, and apo B to HDL cholesterol are strongly associated with incident cardiovascular events. The present studies do suggest that the use of either the ratio of TC to HDL cholesterol or LDL cholesterol to HDL cholesterol is superior to the use of TC or LDL cholesterol alone. CK-MB also positively associated with risk of CVD.

Though the lipid profile is a proven diagnostic marker in CVD, there are some differences with their levels in individuals. This leads to mismanagement. But inflammatory marker, especially, hsCRP level seems to be a useful marker for vascular risk. This when combined with traditional risk factors may be help improve better risk prediction.

- In patients with CVD, atorvastatin treatment significantly reduced inflammatory markers such as hsCRP, fibrinogen, TNF-α and IL-6 independent to cholesterol reduction and also atorvastatin has fast and early anti-inflammatory effects similar to their lipid lowering effects.

- Treatment with atorvastatin significantly reduces the levels of TC, TG and LDL cholesterol in serum. In addition, atorvastatin significantly reduces non-HDL cholesterol and apo B levels, and produces changeable increases but not significant in HDL cholesterol and in apo A-I.

- It was also found that the reductions in TC to HDL cholesterol, LDL cholesterol to HDL cholesterol, TG to HDL cholesterol and non-HDL cholesterol to HDL cholesterol ratios with atorvastatin therapy. This suggests that atorvastatin mainly reduces the lipid fraction mainly available, relatively than targeting only one lipid fraction. Improvement of abnormalities of lipid metabolism by atorvastatin might therefore prevent the progression of CVD.

- Atorvastatin significantly lowered serum uric acid levels. It is notable that uric acid reduction was independent of changes in lipidemic parameters.
• There were no significant difference between untreated and treated group in the levels of CPK, AST, ALT, bilirubin, total protein, albumin, globulin, A/G ratio, urea and creatinine. There was a negligible elevation of AST and ALT observed in some patients in the test group following atorvastatin therapy and these elevations are not clinically significant.

Therefore, the present findings suggest that atorvastatin seems to be a more potential anti-atherosclerotic and anti-inflammatory agent in addition to its lipid lowering effect.

"The availability of drug (viz, statins) and nondrug strategies (life style modifications) that could reduce the cardiovascular events provide hope that CVD can be minimized"