CHAPTER SIX: STUDY LIMITATIONS AND PERSPECTIVES

Since the mechanisms of endothelial dysfunction appear to differ according to the diabetic model and the vascular bed, it is important to select clinically relevant models for future research of endothelial dysfunction. The major limitation of the present study is that a rat model of diabetes does not fully represent the whole spectrum of complex metabolic abnormalities seen in diabetes mellitus. In addtion to ERK activation, other mechanisms including p38 MAPK and JNK need to be examined. Furthermore, the role of the ERK and NF-κB signaling pathway in mediating STZ-diabetes awaits further validation via specific inhibitors application.

Advances in understanding the pathophysiologic mechanisms leading to vascular damage in diabetes may lead to novel therapeutic strategies with the potential to improve prognosis. Although statins already provide clinicians with a powerful therapeutic tool for the treatment of patients with cardiovascular disease, the full potential of this exciting class of drugs in vascular protection is only just being realized. Although, in this study atorvastatin showed beneficial effects, it needs to be clarified if those effects are a common statin-class effect or atorvastatin-specific. Thus, the results should be evaluated in further studies before solid conclusions can be reached. While further research is required to fully elucidate the mechanisms by which atorvastatin act, it is clear that its antioxidative and anti-inflammatory effects may contribute to the beneficial effects on endothelial dysfunction in diabetes. Further studies with other pleiotropic effects of atovarstatin including neurogenesis and angiogenesis will help to elucidate the full therapeutic benefits of this agent.