SUMMARY AND CONCLUSION

The present study was performed on 65 adult male subjects categorized into 3 groups:

☆ Group (1): 21 Insulin-dependent diabetic patients with microalbuminuria.

☆ Group (2): 24 Insulin-dependent diabetic patients without microalbuminuria.

☆ Group (3): 20 healthy normal controls.

Patients and controls were subjected to the following:

- Careful history and clinical examination.
- Fundus examination to exclude diabetic retinopathy.
- Electrocardiography.
- Laboratory investigations:
    - Detection of microalbuminuria.
    - Fasting and post-prandial blood sugar.
    - Blood urea and serum creatinine.
    - Lipid pattern including:
        1) Serum total lipids.
        2) Serum total cholesterol, HDL-cholesterol and LDL-cholesterol.
        3) Serum triglycerides.
        4) Serum phospholipids.

5) Apolipoprotein A_1 and B.

- Factor VII, VIII and antithrombin III.

The objective of this study is to determine whether insulin-dependent diabetics with microalbuminuria have significant abnormalities in concentrations of lipoproteins, apolipoproteins A_1 and B, clotting factor VII, VIII and antithrombin III which could result in increased cardio- vascular risk.

The results of the present work revealed that in the microalbuminuric diabetic patients, low density lipoprotein cholesterol was higher than in the control subjects ($P < 0.05$); the high density lipoprotein/low density lipoprotein cholesterol ratio was lower than in the normoalbuminuric diabetic patients ($P < 0.05$) and in the control subjects ($P < 0.05$); Apolipoprotein B was higher than in the normoalbuminuric patients ($P < 0.05$), the apolipoprotcin A_1/B ratio was lower than in the normoalbuminuric diabetic patients ($P < 0.05$), and phospholipids was higher than in the control subjects ($P < 0.05$). Serum triglycerides was higher in the microalbuminuric diabetic patients than in the normoalbuminuric diabetic patients ($P < 0.05$) and in the control subjects ($P < 0.05$).

No Significant differences between the 3 groups were present with respect to serum cholesterol, high density lipoprotein cholesterol and apolipoprotein A_1.

As regard to the coagulation parameters, the results of the present work showed that in the microalbuminuric diabetic patients, plasma Coagulation factor VII and VIII were higher than in the control subjects ($P < 0.05$). Anti-thrombin III was higher than in the control subjects ($P < 0.05$).

In the 2 combined type I diabetic groups, there were significant correlation between urinary albumin excretion and apolipoprotein B (R 0.612, $P < 0.05$), apolipoprotein A_1/ B ratio (R 0.675, $P < 0.05$) and antithrombin III (R 0.425 $P < 0.05$).

These results indicate microalbuminuria related differences in lipid, apolipoprotein levels and clotting factors in male type I diabetic patients which may contribute to an increased risk of cardiovascular disease.

In conclusion this study has shown that at least some of the prerequisties for the development of atherosclerosis such as abnormalities in lipoprotein, apolipoproteins and increased clotting factors VII, VIII and antithrombin III are found in insulin-dependent diabetics with microalbuminuria, itself a strong predictor of later development of clinical proteinuria and greatly increased risk of coronary heart disease. The inceased risk of coronary heart disease in patients with clinical proteinuria may result from prolonged exposure to these risk factors which are present before any impairement of renal function.