Thesis title	Effect of High Dietary Protein on Renal Function in Normal Subjects and Diabetic Patients Without Clinical Diabetic Nephropathy
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Abstract

Renal reserve as a good renal function indicator can be achieved by the use of renal hemodynamic response to a protein meal. The purpose of this study was to assess the renal functional reserve capacity in insulin dependent diabetic patients in comparison with healthy subjects.

The study was carried out in two groups of subjects: an experimental group consisted of twenty insulin dependent diabetics without clinical diabetic nephropathy, mean duration of diabetes 5.45 ± 4.26 years, and a control group of twenty healthy subjects. They were grouped into matched pair by age and sex.

The protocol for all subjects was divided into two parts. The first part was to evaluate baseline GFR using 24-hour creatinine clearance together with other renal function and microalbuminuria assessed. The second part was to measure renal functional reserve by loading a high protein diet (1.5 gm protein/kg BW) in the form of grilled chicken sirloin with some steamed rice (1 gm/kg BW) to provide 7-10 kcal/kg BW and 10 ml of water/kg BW was also taken. After the meal GFR was periodically assessed by measuring creatinine clearance every 30 minutes in the first hour and then every 60 minutes for the next two hours. The study showed that:

1. The baseline GFR in diabetics was not significantly different from the healthy subjects: the values were 67.16 ± 21.41 ml/min/1.73 m^2 and 66.43 ± 12.41 ml/min/1.73 m^2, respectively.

2. The peak GFR was 30 minutes after protein loading in both groups : the values were 107.72 ± 49.57 ml/min/1.73 m^2 and 112.96 ± 32.28 ml/min/1.73 m^2 in the diabetics and the control groups, respectively.

3. The increments of GFR were similar in the two groups throughout three hours, though it seemed to be higher in the control (80.49 ± 67.41%) than in the diabetics (63.31 ± 49.28%) within 30 minutes.

4. When the diabetic subjects were divided into two groups according to the baseline GFR, the increment of GFR in diabetics with higher filtration was lesser in every period (47.67 %, 27.29 %, 5.78 % and 43.78 %) compared with lower filtering diabetics (76.10 %, 87.76 %, 65.16 % and 73.12 %).

5. The diabetics with longer diabetic duration tended to have lower GFR but higher microalbuminuria.

6. The diabetics with higher postprandial plasma glucose concentration tended to have more microalbuminuria and lower baseline GFR.

A conclusion was drawn from these results that the diabetics in this study were in the early stage. Their baseline GFR and renal function reserve were still maintained. Microalbuminuria rose after high protein loading but remained in normal range.

If many more diabetic subjects could be recruited in the study, it might be possible to categorize phases of renal involvement in diabetics. Their baseline GFR and renal reserve can be used as an accurate indicator of their renal involvement and as predictor of the stage of diabetic nephropathy. A repeated study in the next 5-10 years in these subjects will be very valuable.