ORIGINAL ARTICLE

Hypertension in Renal Diseases as a Major risk Factor for Diabetic Patients - A Comparative Clinical Study

MUHAMMOD ROH UL AMIN[1], HUMARA SHUKAT[2], ALI SAAD TARIQ[3], *ARSLAN SHUJA*[4]

ABSTRACT

The aims and objectives of current study were to evaluate the impact of hypertension in diabetic and non-diabetic patients with kidney diseases. The findings of this study are significant and fallow the pattern of changes in biomarkers as previous studies. The results of Group B and Group C regarding Glucose levels (random), Systolic blood pressures, diastolic blood pressures and serum Creatinine levels (140±20, 135±11, 85±10,7.22±10),(130±13,120±10, 80±15, 0.12±18) as compared to control Group A (240±21, 160±12, 100±10, 6.11±14) showed significant changes respectively.

Keywords: Hypertension, Diabetic nephropathy, Albuminuria, glomerulosclerosis

INTRODUCTION

Diabetes mellitus or diabetes is a metabolic disorder in which insulin does not produce from the beta cell of the pancreas or in other case not matched to the receptors[3]. A sufficient amount of insulin is required for the proper metabolism of carbohydrates[4]. Insulin is a hormone which regulates the required quantity of sugar in the blood[7]. Hyperglycemic condition produced number of medical complications in the vital organs. Different researchers identified through their studies that small blood vessels are injured in the body[5]. Similarly the blood vessels of kidney also damaged by the threshold of hyperglycemia. When blood passes from the injured vessels of the kidney it cannot clean properly. Therefore the concentration of salts and other waste products including water will increase in the body[1].

The nerves in the body also damaged by diabetes then in this condition a person feel very difficulties in emptying his bladder. The back flow pressure of full bladder can damage kidneys. Infection may be developed due to the long stay of urine in the body. When the quantity of sugar will increase in the blood there are chances to grow more and more notorious bacteria [6]. There are number of studies in which different factors identified which develop diabetic nephropathy, the most common is hypertension in both patients with type 1 and type 2diabetes[8].

The two kidneys are located each side of spine below the rib cage and each kidney is bean-shaped vital organ. In a healthy person the two kidneys per day produced nearly one to two quartz urine by the glomerulus filtration of about 120 to 150 quarts of blood. Kidneys work at the microscopic level[10]. The basic unit of kidney is nephron and it has concluded by different studies that high blood presser may damage the nephrotic cell due to this condition kidney can damaged. In those diabetic patients how have chronic kidney diseases, hypertension is a major problem. Studies claimed that hypertension may increase the risk for kidney disease[9].

[1]SR Medicine. Ghazi Khan Medical College, Dera Ghazi Khan
[2]Associate Professor Physiology, Rai Medical College Sargodha
[3]Associate Professor Islam Medical and Dental College Sialkot
[4]Institute of Molecular Biology&Biotechnology, University of Lahore
Corresponding author: Arslan Shuja,
Email::arslanshuja1@gmail.com cell.03354568416

MATERIALS AND METHODS

The current study was conducted in medical and urology wards, 135 patients were selected and divided them into three groups. In Group A, 35 individuals were normal i.e. control group. In Group B, 50 patients were diabetic with renal disease while in Group C, 50 patients were non-diabetic with renal disease. Both Systolic and diastolic blood pressures were measured with sphygmomanometer. Other biomarkers i.e. blood glucose levels and serum Creatinine levels of each group were performed with colorimetric method. The raw data was interoperated with model SSPS.

RESULTS

Group A: Control n=35

Biomarkers	Units	Mean ± SD
Glucose levels (random)	mg/dl	130±13
Systolic blood pressures	mm/Hg	120±10
diastolic blood pressures	mm/Hg	80±15
serum Creatinine levels	mg/dl	0.12±18

<0.005

Group B: Control (n= 50)

Biomarkers	Units	Mean ± SD
Glucose levels (random)	mg/dl	240±21
Systolic blood pressures	mm/Hg	160±12
diastolic blood pressures	mm/Hg	100±10
serum Creatinine levels	mg/dl	6.11±14

<0.005

Group C: Control (n=50)

Biomarkers	Units	Mean ± SD
Glucose levels (random)	mg/dl	140±20
Systolic blood pressures	mm/Hg	135±11
diastolic blood pressures	mm/Hg	85±10
serum Creatinine levels	mg/dl	7.22±10

<0.005

All the results are significant (<0.005)in Group A , Group B and Group C the Glucose levels (random), Systolic blood pressures, diastolic blood pressures and serum Creatinine levels were (240±21, 160±12, 100±10, 6.11±14), (140±20, 135±11, 85±10,7.22±10), (130±13,120±10, 80±15, 0.12±18) calculated respectively.

DISCUSSION

A study described that glomerular filtration rate decreased due to glomerulosclerosis, progressive albuminuria and hypertension which causes diabetic nephropathy. Coresh *et. al* 2007, stated Hypertension is common among patients with chronic kidney disease (CKD) and diabetes mellitus .Lin *et al* 2011 claimed in their study that hypertension is a major biomarker in diabetic patients of both the types for kidney diseases. All the statistical data of present study suggested that there is a significant (**<0.005**) difference has seen in the results of Group B and Group C regarding Glucose levels (random), Systolic blood pressures, diastolic blood pressures and serum Creatinine levels (140±20, 135±11, 85±10,7.22±10), (130±13,120±10, 80±15, 0.12±18) as compared to control Group A (240±21, 160±12, 100±10, 6.11±14) respectively.

CONCLUSION

It has concluded that the current study fallow the pattern of previous studies.

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