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An Overview to compare the level of Blood Urea and Serum Creatinine in diabetic, non- diabetic and diabetic with Glycemic Control subjects in Punjab, India

Gurnam Singh Department of Biochemistry, JJT University Jhunjhunun, Rajasthan, India

Dr. Anu Kumar Sharma Department of Zoology, Govt. Dungar College, Bikaner, Rajasthan, India

ABSTRACT Diabetes mellitus is commonly linked with renal dysfunction. The aim of the recent study was to evaluate the renal dysfunction in subject with diabetes and the effect of diabetes mellitus on other bio chemical variables. The study was conducted by taking 100 subjects suffering from diabetes, 100 non diabetic subjects and 100 diabetic mellitus with glycemic control subjects. In present study, evaluate the blood urea and S. Creatnine as a marker of diabetic subjects and for comparing the level of blood urea and S. Creatnine in diabetic as well as non- diabetic subjects. The study also depicts a comparison, between the blood urea and S. Creatnine in diabetic having glycemic control with non-diabetic subject and diabetic. Blood urea and S. Creatnine related complications in both groups have also been discussed. Correlation between the levels of Blood Urea and S. Creatnine with other related parameters has been performed.

KEYWORDS :

INTRODUCTION:-

Diabetes Mellitus is a disorder characterized during chronic hyperglycemia among turbulence of protein metabolism, carbohydrate and fat related with complete or relative deficiencies during insulin discharge and/or insulin act (Joslin, 1994). Some different types of (Type 1 Type 2 and GDM) Diabetics Mellitus subsist and are as a result of multifaceted interface of heredity as well as atmosphere factors.

Lying on etiology of the Diabetics Mellitus, factors causative to hyperglycemia contain lower insulin discharge, reduced glucose consumption, along with enhanced glucose production. The metabolic reregulation accompanied by Diabetics Mellitus brought in low-grade pathophysiologic alteration in several organ systems which inflict an incredible trouble on the diabetic person along with health mind organization (Harrison's Internal Medicine, 2011).

MATERIAL AND METHODS:-

The goals of observing the S. creatinine and B. urea levels in type 2 diabetes mellitus patients. The levels of S. creatinine and B. urea are additionally correlated and compared with the receipt results with glycemic control in these patients. The source of data was collection from Civil Hospital Jalandhar and N. I. T Dispensary, Jalandhar. The controls were 100 diabetic subjects, 100 diabetic with glycemic control subjects and 100 non-diabetic subjects. Venus blood used for the investigation.

RESULTS:-

In the present study the Blood urea and S. Creatnine were estimated in 100 diabetic mellitus, non-diabetic and diabetic with glycemic control subjects. The patients were divided into two groups 35-45 and 46-55 for analytical purpose. The mean age of diabetic subjects in the present series was 44.38 + 6.18, non-diabetic subjects was 44.4 + 5.77 and diabetic with glycemic control was 43.8 + 6.29 respectively. Among the 100 patients study 50% were males and 50% was females. The mean Blood Urea in diabetic cases was 42.39 ± 26.02 and mean of S. Creatinine in Diabetic cases was 133 ± 1.24. The mean Blood Urea in non-diabetic patients was 30.57 ± 3.66 and mean of S. Creatinine in Non-Diabetic cases was 0.93 ± 0.12. The mean Blood Urea diabetic with glycemic control subjects was 31.78 ± 5.74 and mean of S. Creatinine in Diabetic with Glycemic Control cases was 0.95 ± 0.14. In diabetic patients have a higher value of Blood Urea when compare to non diabetic subjects and diabetic with glycemic control subjects and it was statically highly significant and the P value is <0.0001. In diabetic patients have a higher value of S. Creatinine when compare to non diabetic subjects and diabetic with glycemic control subjects and it was statically highly significant and the P value is <0.0001.

Blood Urea		
	Mean ± SD	P value
Diabetic subjects (N = 100)	42.39 ± 26.02	<.0001
Non -diabetic subjects (N = 100)	30.57 ± 3.66	
Diabetic with glycemic control subjects (N = 100)	31.78±5.74	

Sr. No.	Group	Sex	No.	Mean Age in Year
1	Diabetic Subjects	Male Female	50 50	44.38 + 6.18
2	Non-diabetic Subjects	Male Female	50 50	44.4 + 5.77
3	Diabetic with Glycemic Controls	Male Female	50 50	43.8 + 6.29

DISCUSSION:-

In our study it is observed that the level of the Blood urea and S Creatinine can be used at a useful prognostic marker and predictors of renal damage in diabetic patients (Aldler et al., 2003). Effective control of blood sugar level can stop progression to diabetic nephropathy and thus remarkably reduce the morbidity and mortality associated with this metabolic disease. The tendency of occurrence of renal function tests value at the higher reference limits in cases of type 2 diabetic mellitus reflects the initiation of nephropathy changes. Estimation of Renal function tests in simple, reliable, economic and sensitive that can now be considered as an adjunct in the management and long duration treatment of Type 2 diabetes mellitus disorder (Rohitash et al., 2014)

According to the Archana et al., 2015, Diabetes causes an exclusive change in the structure of kidney. The elevated glomerular basement membrane breadth, disperse mesangial sclerosis, microaneurysm, hyaline arteriosclerosis and hyalinosis, characterized standard glomerulosclerosis. Interstitial and Tabular changes are also found to be present. Region of excessive mesangial extension called kimmelstiel-Wilson nodules or nodular mesangial expansion are found to be 40-50% of the patients escalating proteinuria.

In diabetics, the level of the Blood Urea and S. Creatinine were superior, to non diabetics subjects. The results are in accordance with the research by Buch et al., 2015, Blessing et al., 2011 and Sharlin et al., 2015 who also found Blood Urea and S. Creatinine were upper in diabetic subject.

S. Creatinine		
	Mean ± SD	P value
Diabetic subjects (N = 100)	1.33 ± 1.24	<.0001
Non -diabetic subjects (N = 100)	0.93 ± 0.12	
Diabetic with glycemic control subjects (N = 100)	0.95 ± 0.14	

According to Perrone et al., 1992, the recognized markers of the glomerular filtration rate are plasma creatinine and plasma urea. A more responsive guide of the kidney function is plasma creatinine than the plasma urea level. This is as the requirements for a prefect filtration mostly fulfills by the plasma creatinine.

Serum level of urea and creatinine is able to use as valuable prognostic markers along with predictors of renal damage in diabetic patients. Useful control of blood sugar levels can stop succession to diabetic nephropathy and thus remarkably decrease the mortality and morbidity related with this metabolic disease. The inclination of incidence of renal function tests value at the elevated reference limits in patients of type- 2 diabetes mellitus reflects the initiation of nephropathy changes. Evaluation of renal function tests is simple, reliable, economic moreover sensitive that can now be considered as an adjunct in the management and long duration curing of type-- 2 diabetes mellitus disorder, Alder et al 2003.

CONCLUSION:-

Blood urea and Serum Creatinine level are strongly associated each other. They are very prone to blood sugar level for fluctuation in their levels. To observe the diabetes patients, evaluation of blood urea and Serum Creatinine level along with blood sugar are important. Good control of blood glucose level is absolute prerequisite to prevent progressive renal impairment.

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