ORIGINAL ARTICLE

Association of Hypertension and Cardiac Enzymes in Diabetic and Non-Diabetics

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ABSTRACT

In this study the risk factors like lipoproteins including Cpk total, Ck-Mb and blood pressure have to be determined in diabetic and non diabetics. The blood pressure and heart enzymes level taken from 300 patients reports to check the effect of them on diabetic and non-diabetic patients and risk of heart diseases occurrence in them.

Keywords: Diabetes, CpK , Ck

INTRODUCTION

Coronary heart disease is due to accumulation of lipoproteins in veins and cholesterol deposition. Coronary heart disease is a strong risk factor with the presence of different factors like HDL, VLDL, LDL, GOPT and blood pressure with their ages of patients[1]. The effects of diabetes mellitus cause damage, dysfunction and failure of different organs. The symptoms of diabetes are the polydipsia and polyuria. Diabetic complications may be related to the vascular or macro vascular complications which causes atherosclerosis, stroke, and peripheral artery disease. Microvascular complications in diabetic patients are leading to end stage renal disease and blindness[1,2]. Functions of the coronary artery are also disturbed by the diabetes[2].

The aim of our study is to observe the relationship between the blood glucose, blood pressure that leads toward coronary heart failure diseases[3]. So for this we collected the lab reports of patients who are suffering from the diabetes as well as from heart disease/hypertension or non-diabetic patients having heart diseases and only heart patients between the 30-75 year old male and females and to see the relationship between the blood heart enzyme level, blood pressure and blood glucose in the population of Gujrat[4].

METHOD

For the data collections, arrange the team that went to different labs where test of diabetic patients are taken. We give the application there for the reports collection. 1st of all we went to the Malik Haider Hospital lab and get the data of heart patients, and diabetics. Then we take the data from the City Hospital, Gujrat and Doctors Hospital, Gujrat. Our main focus was on the different values of blood glucose level, cardiac enzymes. We also take the blood pressure values of the patients. Normal value of glucose in the body is between the 90-120mg percent in the body and when it exceeds from it, indicates that person is suffering from the diabetes. We take the blood pressure of the patients for the comparison to check that what its effect on the heart and diabetes is worse. How diabetes leads towards the heart diseases.

Variables: Different variables taken and arrange them on the SPSS. And these variables have the universal/standard values. The heart enzymes Cpk-total and CK-MB should be up to 195 U/l, upto 25U/l respectively. Total 315 patients were taken for the study

Statistical analysis: Data were analyzed through the SPSS. The mean values were determined through the descriptive analysis. Mean and their maximum, minimum values of the each variable determined. We perform the independent T test to check what the relation between the diabetes and heart enzymes and what are the chances of heart diseases in the diabetic and non-diabetic patients? Here take the ρ value of 0.05 or 95% CI taken as statistically significant value.

RESULTS AND DISCUSSION

About 300 patients's data obtained and analyzed to check the effect of different variables on the diabetes and non-diabetes condition and different factors ratios that can lead towards the heart diseases. SPSS a statistical tool is used to analyse the link of diabetes with cardiac enzymes and hypertension. Data has been collected for around 300 patients from City Hospital, Malik Haider Hospital, Aziz Bhatti Shaheed Hospital and Doctor's Hospital Gujrat.

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According to the reference values set by WHO for normal fasting blood glucose level that is 90 to 110. 37 males were non diabetic and 134 males were diabetic and 29 females were non diabetic and 100 females were diabetic according to the results analyzed by the SPSS as shown below in Table 1. It means that the prevalence of diabetes in females is more than in males. With the increase of age the chances of type II diabetes also increases[5,6].

The average age mean of 300 individuals for non-diabetic patient is 47.77 and average mean age for diabetic is 52.1966. The p value of age is 0.017 which shows that with the increase in age the chances of diabetics also increase. The blood pressure and the level of different heart enzymes of these diabetic and non-diabetic individuals were checked and compared. According to statistical analysis made from the SPSS the average mean level of for diabetic and non-diabetic patients were mentioned in the table 2.

The p value for CpK total is less than 0.05 which shows that the diabetic patients have also increased level of this enzyme. The blood pressure of diabetic patients is mostly high. The p value calculated by SPSS for upper blood pressure is .263 and lower blood pressure is .017.There is less chances of high blood pressure in diabetic patients shown by SPSS. And more chance of lower blood pressure increase. The p values of different variables are shown in the table 3.

Table 1

Gender	Diabetes status		Gender	Diabetes status
Male	Non Diabetic N	Valid Missing	37 0	37 0
	Diabetic N	Valid Missing	134 0	134 0
Female	Non Diabetic N	Valid Missing	29 0	29 0
	Diabetic N	Valid Missing	100 0	100 0

Table 2:

	Diabetes Status	N	Mean	Std. Deviation	Std. Error Mean
Age	Non Diabetic Diabetic	66 234	47.7727 52.1966	12.82881 13.29283	1.57912 .86898
FBG	Non Diabetic Diabetic	66 234	89.3788 2.0652E2	24.15639 60.72235	2.97345 3.96954
Cpk total	Non Diabetic Diabetic	66 234	5.9465E2 3.7891E2	663.79477 374.73027	81.70749 24.49688
CKMB	Non Diabetic Diabetic	66 234	80.8333 65.7308	118.05143 76.83934	14.53113 5.02314
Upper BP	Non Diabetic Diabetic	66 234	1.4600E2 1.5528E2	23.03576 66.05132	2.83551 4.31791
Lower BP	Non Diabetic Diabetic	66 234	85.8939 89.8462	13.38441 10.07024	1.64751 .65831

Table 3: Independent Samples Test

		Levene test for equality of variances		T test for Equality			
		F	Sig.	T	Df	Sig (2tailed)	Mean Difference
Age	Equal variances assumed Equal variances not assumed	.342	.559	-2.406 -2.454	298 107.576	.017 .016	-4.42385 -4.42385
FBG	Equal variances assumed Equal Variances not assumed	40.334	.000	-15.319 -23.619	298 266.767	.000 .000	-117.14258 -117.14258
CPK total	Equal variances assumed equal Variances not assumed	6.080	.014	3.411 2.529	298 77.037	.001 .013	215.73699 215.73699
CKMB	Equal variances assumed Equal Variances not Assumed	1.062	.304	1.238 .982	298 81.139	.217 .329	15.10256 15.10256
Upper BP	Equal variances assumed Equal Variances not assumed	.306	.580	-1.121 -1.796	298 286.381	.263 .074	-9.27778 -9.27778
Lower BP	Equal variances assumed Equal Variances not assumed	.137	.711	-2.606 -2.228	298 86.796	.010 .028	-3.95221 -3.95221

CONCLUSION

Our study has shown that the prevalence of heart diseases increases with the increase in fasting glucose level. The data collected from different hospital analyzed by SPSS showed the correlation of diabetes type II with different variables. The results have shown that diabetes type II is a multifactorial disease which damage different organs. In type II diabetes there is an increase in risk of cardiovascular disease.[7]

REFERENCES

1. Dungan, KM, Buse, JB, Largay, J, Kelly, MM, Button, EA, Kato, S (2006) 1,5-anhydroglucitol and postprandial hyperglycemia as measured by continuous glucose monitoring system in moderately controlled patients with diabetes. Diabetes Care 29: pp. 1214-9
2. Standards of medical care in diabetes – 2010. Diabetes Care 33 Suppl 1: pp. S11-61
3. Vague, J, Vague, P, Tramoni, M, Vialettes, B, Mercier, P (1980) Obesity and Diabetes. Acta Diabetol Lat 17: pp. 87-99
4. Puigserver, P, Rhee, J, Donovan, J, Walkey, CJ, Yoon, JC, Oriente, F (2003) Insulin-regulated hepatic gluconeogenesis through FOXO1-PGC-1alpha interaction. Nature 423: pp. 550-5
5. Kendall, DM, Sobel, BE, Coulston, AM, Peters Harmel, AL, McLean, BK, Peragallo-Dittko, V (2003) The insulin resistance syndrome and coronary artery disease. Coron Artery Dis 14: pp. 335-48
6. Haffner, SM (2006) Relationship of metabolic risk factors and development of cardiovascular disease and Diabetes Obesity 14: pp. 121S-7
7. Fonseca, VA (2000) Risk factors for coronary heart disease in diabetes. Ann Intern Med 133: pp. 154-6
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