



## BIO-CHEMICAL ANALYSIS OF POST PRANDIAL HYPERGLYCEMIA PATIENTS

M.S.Rukshana<sup>1</sup>, A.Doss<sup>1</sup> and C.Kasturi<sup>2</sup>

<sup>1</sup>Department of Microbiology, Kamaraj College, Tuticorin, Tamil Nadu, India.

<sup>2</sup>Department of Botany, National College, Trichy, Tamil Nadu, India.

### Article Info

Received 01/06/2016

Revised 15/06/2016

Accepted 30/06/2016

**Key words:-** Diabetes, post prandial hyperglycemia, synthetic drugs, natural drugs.

### ABSTRACT

Diabetes is a major metabolic, multi-causal and heterogeneous disorder which causes significant morbidity and mortality with considerable burden to healthcare resources. Diabetes is due to either the pancreas not producing enough insulin or the cells of the body not responding properly to the insulin produced. There are three main types of diabetes. Among those types post prandial hyperglycemia cause high mortality rate. In this study it highlights the insufficiency of the currently available drugs for controlling the disease and its complications and more needs to be done. A survey was carried out among an adult rural population to assess the prevalence of hyperglycemia. Synthetic drugs were used to treat diabetes but it can also lead to many severe problems. So alternative medicines using natural plants and herbs should be found to get rid of this critical situation. The death arising not only due to diabetes but also the synthetic medication taking against diabetes.

### INTRODUCTION

Diabetes Mellitus can be called simply as diabetes. Diabetes is a group of metabolic disorders characterized by abnormal metabolism, which results most notably in hyperglycemia, due to defects in insulin secretion, insulin action, or both. Diabetes is a serious chronic disease without a cure, and it is associated with significant morbidity and mortality. Either because the pancreas does not produce enough insulin (insulin deficiency), or cells do not respond to the insulin that is produced (insulin resistance). Insulin is a hormone produced by the pancreas. It has a function to control the amount of blood sugar. It works by attaching to the insulin receptor in cell to influence the Glut-4 to transport glucose. Diabetes is a serious disease associated with acute (due to hyperglycemia) and chronic (due to vascular damage) complications. There are three types of diabetes such as Diabetes Mellitus Type 1, Diabetes Mellitus Type 2 and Gestational Diabetes.

Nowadays treatment for diabetes was carried out by synthetic medications. Metformin and Glibenclamide was widely used to treat diabetes. Various other medications were also used. But these synthetic medicines would cause many side effects to the patients. The death rate of diabetes was increasing not only because of diabetes but also by the synthetic medication that was used against diabetes. Alternative treatments are there for diabetes in a natural way but no one is following the natural medication. Further research is needed for the improvement of natural medicines for diabetes. The significance of my study was to show number of people get affected by diabetes in a particular population, sex, and the ages in which they are getting affected.

### MATERIALS AND METHODS

A survey was conducted among individuals of both sex in various ages over a period of one week. The survey was carried out in Lakshmi Hospital, Tirunelveli to assess the prevalence of diabetes. The population in this hospital was minimum 20-30 patients a day. Age difference in men and women was also observed. Many parameters have been used to detect the presence of

Corresponding Author

**M.S.Rukshana**

Email: - [rukshanasana94@gmail.com](mailto:rukshanasana94@gmail.com)



diabetes and also various problems related to diabetes such as concentrations of urea, creatinine, liver function enzymes, cholesterol etc. This survey was based on these parameters.

## RESULT AND DISCUSSION

The survey was carried out within 50-60 patients. Among the patients majority of them were women. And the shocking result was many pregnant women were affected by diabetes mainly post prandial hyperglycemia. Among the population 81% of them were women and 75% of them were men. Blood and urine sample was collected from the patients in a very sterile technique. These samples were used for the parameters to test the presence of glucose, various enzymes, fats etc. Blood sample was mostly used for testing procedures. Urine sample is used for the testing of albumin, sugar and deposits of cells. In blood sample testing parameters the values were noted for the normal and abnormal behaviours. The test carried out in urine will give the result in positive or negative form and the concentration as +, ++, +++. In the parameters glucose was tested for the detection of glucose in both urine and blood.

The liver enzymes were also tested by the parameters such as SGOT (Serum Glutamic Oxalo acetic Transaminase) and SGPT (Serum Glutamic Pyruvic Transaminase). It was measured to check the function of liver which was mostly get affected for diabetes patients. Cholesterol was also checked by the parameters such as LDL (Low Density Lipoprotein), HDL (High Density Lipoprotein), VLDL (Very Low Density Lipoprotein) and

TGL (Triglycerides) which shows the presence of fats in the body. Fat concentration will also depend upon the diabetic patients. Protein tests also carried out with parameters such as Urea, Creatinine and Albumin. Albumin was tested in both blood and urine sample. Other protein tests were carried out only in blood sample. The results of the survey were tabulated below. Glucose values for men and women were given. (Table 1 and Table 2). The glucose concentration was shows the presence of diabetes. The liver enzymes were also tabulated for men and women. (Table 3 and Table 4). In this the result shows that not only the abnormal value leads to abnormal results. It may vary depend upon the patients. Cholesterol was detected by many parameters stated above which was tabulated for men and women. (Table 5 and Table 6). It detects the fat content of the diabetes patient. Protein test was carried out in diabetic patient to check the abnormal functions by the urea, creatinine and albumin content. These results were given separately for men and women. (Table 7 and Table 8).

From the result it shows a rising prevalence of diabetes. And mainly women are affected a lot by diabetes. In this study the result was depend upon the age and sex. By other parameters for other enzymes was also detected so that other problems can also be revealed. Because diabetic patient will have many other problems related to fat, liver and cholesterol. It was mainly due to the synthetic medication. From this survey it was clear that many peoples are affected by diabetics. So awareness should be given to everyone about the risk factor of diabetics.

**Table 1. Glucose concentration for men in both urine and blood sample**

S.No	Age	Sample	Glucose	Normal/Abnormal
1	42	Blood	402	Abnormal
		Urine	+	
2	71	Blood	281.5	Abnormal
		Urine	++	
3	35	Blood	100	Normal
		Urine	Nil	
4	73	Blood	150	Normal
		Urine	Nil	
5	60	Blood	295	Abnormal
		Urine	++	
6	31	Blood	116	Normal
		Urine	Nil	
7	82	Blood	113.1	Normal
		Urine	Nil	
8	43	Blood	312	Abnormal
		Urine	+++	
9	42	Blood	213	Abnormal
		Urine	+	
10	81	Blood	125.4	Normal
		Urine	Nil	



**Table 2. Glucose concentration for women in both urine and blood sample**

S.No	Age	Sample	Glucose	Normal/Abnormal
1	59	Blood	240	Abnormal
		Urine	++	
2	56	Blood	300.7	Abnormal
		Urine	+++	
3	36	Blood	280	Abnormal
		Urine	+	
4	67	Blood	192	Abnormal
		Urine	+	
5	69	Blood	234	Abnormal
		Urine	++	
6	48	Blood	90	Normal
		Urine	Nil	
7	54	Blood	112	Normal
		Urine	Nil	
8	69	Blood	250	Abnormal
		Urine	+	
9	32	Blood	262	Abnormal
		Urine	++	
10	50	Blood	125.1	Normal
		Urine	Nil	

**Table 3. Liver enzyme concentration for men in blood sample**

S.No	Age	SGOT	SGPT
1	42	22	17
2	71	46	53
3	35	17	14
4	73	26	19
5	60	15	20
6	31	40	45
7	82	19	25
8	43	25	32
9	42	21	17
10	81	12	14

**Table 4. Liver enzyme concentration for women in blood sample**

S.No	Age	SGOT	SGPT
1	59	49	38
2	56	13	26
3	36	42	35
4	67	17	20
5	69	15	12
6	48	39	45
7	54	18	12
8	69	24	29
9	32	46	39
10	50	19	15

**Table 5. Cholesterol concentration for men in blood sample**

S.No	Age	LDL	HDL	VLDL	TGL
1	42	45	175	32	78
2	71	120	22	10	66.6
3	35	178	58	25	116.9



4	73	39.2	38	144	196
5	60	123	36	28	140
6	31	182	45	37	159
7	82	143	31	15	125
8	43	189	43	34	145
9	42	134	70	43	55.8
10	81	180	50	26	78.2

**Table 6. Cholesterol concentration for women in blood sample**

S.No	Age	LDL	HDL	VLDL	TGL
1	59	156	48	45	256
2	56	178	21	15	103.9
3	36	98	56	24	149
4	67	180	78	50	130
5	69	113	37	9	295
6	48	100	40	42	134.2
7	54	189	54	32	110
8	69	143	89	45	128
9	32	98	30	14	256
10	50	178	34	38	167

**Table 7. Protein concentrations for men in blood sample**

S.No	Age	Urea	Creatinine
1	42	32	1.20
2	71	47.7	1.1
3	35	42	1.4
4	73	42	1.1
5	60	47.7	1.7
6	31	26.1	1.0
7	82	31.7	1.0
8	43	38	1.8
9	42	42	1.3
10	81	35.2	1.0

**Table 8. Protein concentrations for women in blood sample**

S.No	Age	Urea	Creatinine
1	59	38	0.8
2	56	28.1	1.0
3	36	30	0.9
4	67	42	1.1
5	69	36	1.6
6	48	29.2	0.8
7	54	29	0.9
8	69	38.9	1.0
9	32	35	0.9
10	50	37.5	0.9

## SUMMARY AND CONCLUSION

A high prevalence of diabetes was noted in this rural population. It is also true that changes have been noted in the lifestyle of the population, which could have contributed to the above survey and also their medication of synthetic medicines. Therefore, future research in this survey should be made and want to identify natural remedies for diabetics using medicinal plants.

**ACKNOWLEDGEMENT:** None

**CONFLICT OF INTEREST:**

The authors declare that they have no conflict of interest.



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