



**ORIGINAL RESEARCH PAPER**

**Biochemistry**

**STUDY OF SERUM URIC ACID LEVELS IN TYPE 2 DIABETES MELLITUS PATIENTS ATTENDING OPD AND IPD DR.S.C.GMC & HOSPITAL VISHNUPURI.**

**KEY WORDS:**

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**INTRODUCTION**

Diabetes mellitus is clinical syndrome characterized by hyperglycemia due to relative or absolute deficiency of insulin. Diabetes is global health problem. In india prevalence of diabetes is 2.4% in rural area and 11.6% in urban population. Currently india has 40.9 million peoples with. oxidative stress and defect in antioxidant defence system recognized as the causative factors for the development of Diabetes mellitus. Hyperuricemia is a biochemical entity that is gaining importance as it plays arole in the development of metabolic disorders like Diabetes mellitus. Uric acid is a final oxidative product of purine catabolism are plausible mechanism to suggest that serum uric acide as a potential direct mediator of type 2 diabetes mellitus.<sup>1</sup>

**INCLUSION/EXCLUSION CRITERIA**

Study population group includes peoples of age group 40-55 yr of either sex and cases of established type 2 diabetes mellitus since 5yr.

Exclusion criteria in this study we excluded patients of Gaut, ischaemic heart disease, hepatic infection, HIV, thyroid dysfunction, adrenal disorders. Also we excluded patient on drug like thiazides, diuretics, antitubercular drugs allopurinol, oral contraceptive and NSAIDS like ibuprofen.<sup>2</sup>

**METHODOLOGY**

Ethical clearance was obtained from the ethical committee of the institution. We briefed about the purpose of study and written consent was obtained from all subjects and confidentially and anonymity of patient were maintained.

Cases- 50 patients attending Dr.s c gmc hospital vishnupuri nanded with clinically diagnosed type 2 diabetes mellitus. Controls- 50 healthy subjects.

Venous blood samples were collected sample centrifuged and serum was separated.

Serum uric acid levels were estimated by uricase end point assay method. The kit is product of biolab.

The were analysed by fully auto xL 640 biochemistry analysers.

Statistical analysis was done by SPSS software system Version. P value < 0.05 was considered significant.<sup>3</sup>

**Table no.1 clinical and biochemical parameters in cases and controls and mean age of the subjects in both the groups**

parameter	Cases	controls
numbers	50	50
Sex (m/f)	25/25	27/23
Age group yrs mean	46.3 +- 3.6 years	47.9+- 2.5years
BMI	24.5+-3.7	26.4+- 4.1
DURATION OF DIABETES		4.2+-1.7
Fasting blood glucose (mg/dl)	76+-19	154+-22

GROUPS	MEAN AGE IN YEARS	P VALUES	SIGNIFICANCE
CASES	47+- 2.5	0.458	Not significant
controls	46+- 3.6	0.458	Not significant

**Table 3 serum uric acid levels of the subjects in both the groups**

GROUPS	GENDERS	URIC ACIDE LEVELS mg/dl	P value significance
control	Male(n=25)	4.08+-0.7	0.07 not significant
	Female(n=25)	5.62+-1.04	
Cases	Male(n=27)	6.01+-1.76	0.06 not significant
	Female(n= 23)	6.93+-1.5	

**Table 4 serum uric acid levels off subjects in both cases and controls**

GROUPS	URIC ACIDE mg/dl	t	P value significance
Cases	6.48	8.2	< 0.05 significant
control	4.94	8.2	< 0.05 significant

**DISCUSSION**

Uric acid levels did not show genders difference among controls as well as among cases this is in line with studies by Kodam S et.al.

This study showed that the mean serum uric acid level was significantly higher in type 2 diabetics compared to non diabetic. This in accordance with studies by safi AJ et.al.

Hyperglycemia induces oxidative stress by ROS oxidative and reductive stress through pseudohypoxia by production of NADH and NADH.

Under the condition of increased oxidative stress, there is depletion of local antioxidant like superoxide dismutase, peroxidase and catalase.

This results in increased production of ROS.

Production of superoxide ions subsequently favours antioxidant-prooxidant urate redox shuttle.

Uric acid which was previously physiological antioxidant, paradoxically becomes pro-oxidant.<sup>45</sup>

Dual effect of uric acid as oxidant –antioxidant agent could be beneficial if it is explored and exploited

**CONCLUSION**

This study reveals uric acid is higher in type 2 diabetes mellitus patient.

Uric acid is an antioxidant at lower levels of blood glucose and become pro oxidant due to ROS oxidative stress.

This paradoxical effect shown by uric acid due to the operation of uric acid antioxidant pro oxidant redox shuttle'

This increased uric acid level itself may lead to complications of diabetes mellitus that can be prevented<sup>6</sup>

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