



## Prevalence of asymptomatic hyper-uricemia in adult patients attending a peripheral community health centre of Kashmir

Authors

**Dr Rouf Hussain Rather<sup>1\*</sup>, Dr Aadil Bashir Rather<sup>2</sup>, Dr Umar Nazir<sup>1</sup>**

<sup>1</sup>Demonstrator, Department of Community Medicine, Government Medical College, Karanagar Srinagar

<sup>2</sup>Medical Officer at Health Services Kashmir posted at Emergency Hospital Qazigund.

\*Corresponding Author

**Dr Rouf Hussain Rather**

Demonstrator in the Department of Community Medicine, Government Medical College, Karanagar Srinagar, India

Phone number: 7006826153, Email: [rouf.rather86@gmail.com](mailto:rouf.rather86@gmail.com)

### Abstract

**Introduction:** Hyperuricemia is usually defined as a serum urate (SU) level >7mg/dL in men and >6mg/dL in women. Its prevalence is around 15-18% in general population. Hyper-uricemic patients are usually classified as overproducers (10%) and as under excretors caused due to inefficient excretion by the kidneys (90%).

**Objectives:** To estimate the prevalence of asymptomatic hyper-uricemia and non-communicable diseases in adult patients visiting a peripheral Community Health centre in Kashmir. **Methodology:** This study was conducted in a peripheral Community health centre of Kashmir valley. The study was carried out over 6 months in adult patients of 18yrs or more visiting to hospital for any ailment other than symptomatic hyper-uricemia. A total of 1050 patients were included in the study which included 425 men and 625 women.

**Results and Observation:** The prevalence of hyper-uricemia was 30.1% in men and 15.7% in women. The mean age of the study subjects was 44.7 in males and 41.5 yrs in females. Hypertension was present in 25.4% of men and 24.5% of women, diabetes in 7.5% of men and 11.4% of women of the total study group. History of smoking was present in 40% of men and 0.3% of women and hypothyroidism in 7.8% of men and 9.5% of women.

**Conclusion:** Hyper-uricemia is very frequent in Kashmir valley with men outnumbering women. This high prevalence could be related to genetics and high red meat consumption. Hyper-uricemia has high correlation with the various components of the metabolic syndrome. Considering this association more emphasis should be put on hyper-uricemia.

**Keywords:** Qazigund, Hyper-Uricemia, Overproducers.

### Introduction

Hyperuricemia is usually defined as a serum urate (SU) level of > 7mg/dL for men and >6mg/dL for women. Its prevalence is around 15-18% in general population.<sup>1</sup> Hyper-uricemic patients are

usually classified as overproducers (10%) which is caused due to overproduction of urate and as under excretors which results due to inefficient excretion of urate by the kidneys (90%). SU levels may also increase with aging and weight gain.<sup>2</sup>

<sup>4</sup> Majority of patients (75%) with hyperuricemia remain asymptomatic, and do not need treatment.<sup>5-9</sup>

The prevalence of the hyper-uricemia is predicted by genetic factors, dietary factors, sex, age and comorbidities. Men have a greater risk of developing gout than women in all age groups, although the sex ratio tends to equalize with advancing age. In the National Health and Nutrition Examination Survey III, the overall men: women ratio ranged between 7:1 and 9:1.<sup>10</sup> Young children of both sexes have equally low urate levels, but among adults, men have higher SU levels than women.

### Objectives

1. To estimate the prevalence of asymptomatic hyper-uricemia in adult patients visiting a peripheral Community Health centre in Kashmir.
2. To estimate the prevalence of non-communicable diseases in adult patients visiting a peripheral Community Health centre in Kashmir.

### Methodology

**Study design:** A cross-sectional study.

**Study period:** 4 months, from 1<sup>st</sup> October 2018 to 31<sup>st</sup> January 2019.

### Inclusion criteria

1. All the patients visiting the health-centre during the study period after giving informed consent.

2. Patients having age more than 18 years.

### Exclusion criteria

1. Patients having gouty arthritis.
2. Patients taking uric acid lowering drugs.

This study was conducted at Community Health Centre (Emergency Hospital) Qazigund which is located in the south of Kashmir valley. The study was carried out over a period of 4 months in adult patients visiting to hospital for any ailment other than symptomatic hyper-uricemia. The serum levels of uric acid were measured in patients after doing physical examination including measurement of blood pressure and Body Mass Index (BMI). Values of uric acid above the 75<sup>th</sup> percentile (i.e. > 7mg/dL for men and >6mg/dL for women) were defined as high. A total of 1050 patients were included in the study after taking informed consent from them. The study population included 425 men and 625 women.

### Observations and Results

The characteristics of the participants are presented in Table 1 and Table 2. As shown in table 1, serum uric acid levels were significantly higher in men than in women. The mean age of the study subjects was 44.7 in males and 41.5 yrs in females.

**Table 1:** Distribution of continuous variables among study subjects:

Variable	Unit	Men (n = 425)			Women (n =625)		
		Minimum	Maximum	Mean	Minimum	Maximum	Mean
Serum uric acid	mg/dl	3.9	11.2	6.8	4.0	9.4	5.3
Age	Years	21	73	44.7	19	72	41.5
Systolic BP	mmHg	92	186	128.6	88	180	119.3
Diastolic BP	mmHg	66	120	88.8	60	116	86.3
Body mass index	kg/m <sup>2</sup>	17.2	31.4	23.2	18.4	34.1	26.5

The mean serum uric acid level among men was 6.8 mg/dl and among women was 5.3 mg/dl.

**Table 2:** Distribution of dichotomous variables among study subjects:

Co-morbidity	Men (n = 425)		Women (n =625)		Total (n =1050)	
	Number	% age	Number	% age	Number	% age
Hypothyroidism on treatment	33	7.8	59	9.5	92	8.8
Smoking	157	40	02	0.3	159	15.1
Treatment for hypertension	108	25.4	153	24.5	261	24.9
History of diabetes	32	7.5	71	11.4	103	9.8

Out of the co-morbidities hypertension was most prevalent among study subjects (25%) followed by smoking and diabetes.

### Discussion

When using the commonly accepted cut-off values for serum uric acid levels, i.e a serum uric acid >7mg/dL in men and >6mg/dL in women<sup>11</sup>, the prevalence of hyperuricemia was found to be 30.1% in men and 15.7% in women. We found that serum uric acid levels were higher in men than in women as was the prevalence of hyperuricemia. We also found that uric acid levels in women increased above the age of 50 years. These sex differences of serum uric acid levels and the increase after the menopause in females have been reported previously and attributed to the influence of sexual hormones<sup>12,13,14</sup>. This high level of serum uric acid levels could be a result of high consumption of red meat which is very prevalent in Kashmir Valley. Also genetic factors may also be responsible.

Diabetes was present in 7.5% of men and 11.4% of women with an overall prevalence of 9.8%. This is almost same as the worldwide prevalence. Hypertension was present in 25.4% of men and 24.5% of women.

History of smoking was present in 40% of men and 0.3% of women among study population and hypothyroidism in 7.8% of men and 9.5% of women.

Significant correlations were found between serum uric acid level and BMI and also between serum uric acid level and blood pressure, in both men and women. Several possible pathophysiological mechanisms have been described to explain these associations including insulin resistance<sup>15,16</sup>, the use of diuretics<sup>10,17</sup> or impaired renal function accompanying hypertension<sup>18</sup>.

### Conclusion

Hyper-uricemia is very frequent in Kashmir Valley. This high prevalence could be related to genetic factors and high red meat consumption. Hyper-uricemia has strong correlation with the various components of the metabolic syndrome like BMI and hypertension. Considering this association more emphasis should be put on the study of hyperuricemia and the lifestyle measures to decrease it.

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