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CONNECTION BETWEEN HYPERTENSION AND HIGH BLOOD LEVELS OF URIC ACID AMONG PAKISTANI CITIZENS

[1]Muhammad Umar Ramzan, [2]Atif Rasool, [3]Kashif Sardar
[1]Azra Naheed Medical College, Lahore
[2]Azra Naheed Medical College, Lahore
[3]Azra Naheed Medical College, Lahore

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Abstract:
Objective: *To determine the connection between hypertension and high levels of uric acid in the blood among the citizens of Pakistan.*
Study design and duration: *This is a prospective analysis that was initiated in august 2018 and completed in March 2019 after eight months.*
Setting: *This study was held in the Mayo Hospital Lahore.*
Patients and methods: *All patients with high blood uric acid levels reported to the hospital under study were included in this study. The two groups of patients have been made. WHO calculator has been used to calculate the sample size. Group A was made of patients with high blood pressure, while group B was made of patients having normal levels of blood pressure. There were 150 patients in a single group and a total of 300 patients. According to inclusion criteria, the fasting level of uric acid in the blood should be increased; the blood pressure should be more than usual depending on the age of 3 different days per week. A pre-designed proforma was used to document all the collected data. Calculations were made using version 24 of the SPSS software. Results were determined as an SD for quantitative variables, a percentage for qualitative means and variables was calculated. P-values of 0.05 or less than that were considered to be significant. The interval of confidence was 95 per cent, with an error margin of 5 per cent.*
Results: *There were a total of 300 cases involving 155 male patients (51.7%) and 145 female patients(48.3%). In group-A with patients of hypertension, 45 were male patients (15 per cent), and 105 were female patients (35 per cent). While in patients of group B with normal levels of blood pressure, 110 were male patients (36.7 per cent), and 40 were female patients (13.3 per cent). The patients were of 20 to 80 years of age, having a mean age of 46.78±8 years old. In patients of group A with hypertension, 73 patients (24.3 per cent) had hyperuricemia. In the patients of Group B, 5 out of 150 patients (3.3 per cent) had hyperuricemia, including four male patients (2.7 per cent) and one female.*
Conclusion: *There is a close correlation between hyperuricemia and patients with hypertension among the population of Pakistan and most frequently among the female population.*

Corresponding author:
Muhammad Umar Ramzan,
Azra Naheed Medical College, Lahore

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INTRODUCTION:

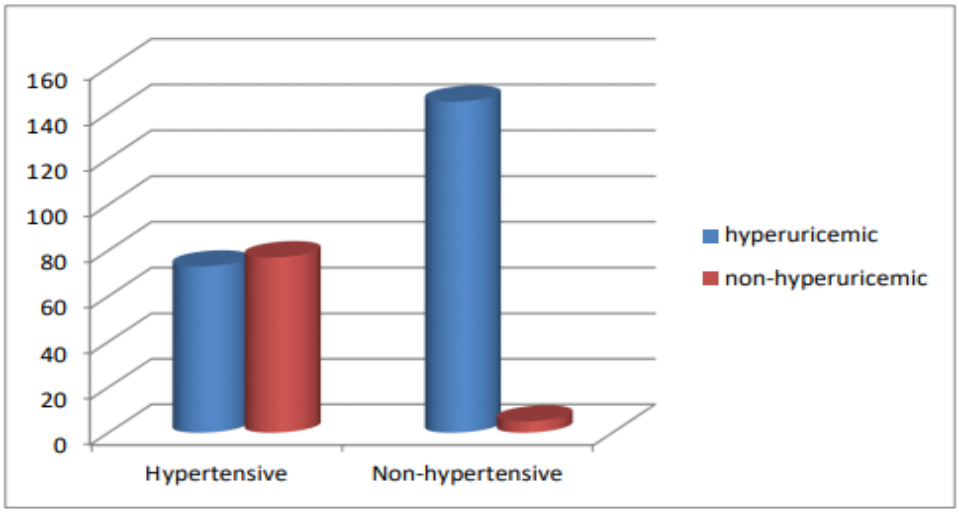
Hyperuricemia is a metabolic disease that can lead to multiple body complications.1 Approximately 70% of hyperuricemia cases are symptomatic, and the rest are asymptomatic. It has two forms of presentations, either joint pain due to deposition of uric acid crystals and the second presentation in the form of hypertension.2 Higher serum uric acid levels may cause hypertension, chronic renal disease, insulin resistance, obesity, and complications of cardiovascular disease. This research is about the relationship between hyperuricemia and hypertension.3 Hypertension is a significant disease worldwide, and the cause is unknown.4. It depends on several factors, but an independent risk factor is hyperuricemia. The mechanism by which HTN is caused by hyperuricemia may be due to high uric acid pre-renal vascular damage, leading to renin-angiotensin system activation, sodium retention, and leading to the development of hypertension. Due to the increased level of serum uric acid, this is one of the few HTN output pathways suggested. Hyperuricemia as a risk factor for hypertension has been identified in several studies; it must be determined whether not all hypertensive patients have hyperuricemia.5 Studies have shown that hyperuricemia is more associated with diastolic hypertension than with systolic hypertension.

PATIENTS AND METHODS:

This is prospective research undertaken at a tertiary hospital that began in July 2019 and was completed after eight months in February 2010. The purpose of the analysis was to establish the correlation of hyperuricemia with hypertension. This review included all those patients with hyperuricemia presenting to the study hospital. Patients were split into two types. The WHO calculator was used to measure the sample size. Hypertensive patients were maintained in group-A, and regular blood pressure patients were maintained in group-B. There were 300 cases in all, 150 of them in each category. According to the inclusion criteria, the amount of fasting uric acid in the blood should be raised, and blood pressure should be greater than the average age limit on three separate days of the week. In a pre-designed proforma, Al collected data has been registered. Calculations were performed using software version 24 of SPSS. The results were measured in the form of the percentage for qualitative variables and the mean, while the SD for quantitative variables was calculated. The P-value was found to be less than 0.05. The confidence interval was 95%, with a 5% error margin. Before starting the research, consent was obtained from all cases in the study community and the ethical committee of the study hospital. Regardless of age and gender, patients were selected by randomized controlled trials.

RESULTS:

A total of 300 cases were registered, including 155 (51.7 per cent) male and 145 (48.3 per cent) female cases. There were 23 (7.7%) cases between 20-30 years, 42 (14%) between 31-40 years, 95 (31.7%) between 41-50 years, 71 (23.7%) between 51-60 years, and 69 (23%) above the age of 60 years. 45(15 per cent) were male in group A with hypertension, and 105(35 per cent) were female. Although 110 (36.7 per cent) were male in group B with normal blood pressure, 40 (13.3 per cent) were female. With a mean age of 46.78±8.52 years, the age range was 20-80 years. 73(24.3 per cent) cases of hyperuricemia occurred in group A patients with hypertension. In category B, 5(3.3 per cent) out of 150 cases had hyperuricemia, including 4(2.7 per cent) male and one female.



DISCUSSION:

All over the world, hypertension is a common condition. Many complications are associated with it. It is more prevalent in adulthood and among obese people. Several risk factors for hypertension are present.7 Hyperuricemia is a metabolic condition that can lead to many bodily complications. About 70% of cases of hyperuricemia are symptomatic; rest are asymptomatic. It has two forms of presentations, either joint pain due to deposition of uric acid crystals and in the form of hypertension, the second presentation. Hypertension, chronic renal disease, insulin resistance, obesity, and cardiovascular complications can be caused by elevated uric acid levels in the serum. The subject of this study is the association of hyperuricemia with hypertension. This is prospective research undertaken at a tertiary hospital that began in July 2019 and was completed after eight months in February 2010. The purpose of the analysis was to establish the correlation of hyperuricemia with hypertension. This review included all those patients with hyperuricemia presenting to the study hospital. Patients were split into two types.

The WHO calculator was used to measure the sample size. Hypertensive patients were maintained in group-A, and regular blood pressure patients were maintained in group-B. There were 300 cases in all, 150 of them in each category. According to the inclusion criteria, the amount of fasting uric acid in the blood should be raised, and blood pressure should be greater than the average age limit on three separate days of the week. In a pre-designed proforma, Al collected data has been registered. 45(15 per cent) were male in group A with hypertension, and 105(35 per cent) were female. Although 110 (36.7 per cent) were male in group B with normal blood pressure, 40 (13.3 per cent) were female. With a mean age of 46.78±8.52 years, the age range was 20-80 years. 73(24.3 per cent) cases of hyperuricemia occurred in group A patients with hypertension. In category B, 5(3.3 per cent) out of 150 cases had hyperuricemia, including 4(2.7 per cent) male and one female. Increased level of serum uric acid is one of the few proposed pathways of HTN production. Hyperuricemia has been reported as a risk factor for hypertension in many studies, but it has to be determined if all hypertensive patients have hyperuricemia or not. Studies have shown that diastolic hypertension is more closely associated with hyperuricemia than systolic hypertension. To determine the association of hyperuricemia and hypertension, further studies on large groups are needed in this aspect.

CONCLUSION:

It is concluded from this study that hyperuricemia is commonly found in middle-aged and older people and is associated with increased blood pressure. Hypertension has been found mostly among the female population. We can say that controlling the level of blood uric acid can decrease blood pressure among most patients.

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