

Knowledge, Attitude and Practices Assessment of the Gout Patients Residing in Lahore, Pakistan

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ABSTRACT

Background: Gout is the most prevailing type of inflammatory arthropathy and its incidence has risen in recent decades. As previously no such research was found through an extensive literature survey, the current study aimed to evaluate gout patients residing in Lahore, Pakistan.

Methods: To conduct this cross-sectional study, n=203 responses were obtained by a simple and objective-oriented questionnaire devised for the collection of data. Dependent variables association was measured by the Pearson Chi-square. A p-value ≤ 0.05 was considered statistically significant.

Results: A total of n=203 responses results had shown that male patients were predominant 127 (62.56%) and most patients were elderly and obese. Respondents were suffering in ignorance for a long time and many of their joints were affected by gout. Outcomes regarding the severity of pain were based on patient experience, including mild (40.39%) moderate (31.52%) and severe (28.07%). In terms of treatment, 101 (49.75%) were on Allopurinol/ febuxostat/ colchicine, 31 (15.27%) followed by diet modification. 190 (93.6%) reported that gout treatment puts an extra financial burden on them. Restricted mobility was experienced by 173 (85.2%), 157 (77.3%) patients preferred to visit the rheumatologist for a checkup, and 91 (44.8%) seemed help from the pharmacists.

Conclusion: Gout severely affects both physical and physiological health ($p=0.001$). The overall burden of gout is substantial and may be increasing with time. The risk rises in all gender with age and factors like obesity while adoption of a healthy lifestyle and some modifications can reduce the issue and underlined pain in joints.

Keywords: Gout; Arthritis; Inflammation; Allopurinol; Hyperuricemia.

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INTRODUCTION

Gout is known for a long time as one of the chronic inflammatory conditions of the joints. It is also known well as "men's disease" because of the high rate of incidence amongst males than the females¹. Gout may also be defined in terms of raising serum uric acid levels, i.e., hyperuricemia with levels as high as 6.8mg/dl. The increase in serum uric acid levels causes the creation of urate crystals that is quickly followed by the formation of renal stones. It is also at times backed with tophi that ultimately lead to gouty arthritis². Acute gout also manifests with a couple of symptoms that included high pain, swelling, and soreness found all around the joints. The patient might also experience an asymptomatic period between the gout attacks that are designated as inter-critical gout. Another term referred to as "podagra" is typically reserved for acute gout that aims at explaining a condition where the very first metatarsophalangeal joints are affected by the urate crystals. Also, acute gout symptoms come with visible signs of the flares that are exhibited distinctly². There are presented clearly as a majorly inflamed region that causes discomforting pain in the patient which lasts for about 5-10 days. However, the asymptomatic hyperuricemia continues for quite some number of years, even when the flares may dissolve during this duration¹.

On the other hand, the crystals may exhibit propagation along with inflammation and intense pain that eventually enters a phase of chronic gout and tophi will appear. Such tophi can be found at multiple sites such as bones, cutaneous tissues, and articular spaces^{3,4}. The routine activities of a gout patient might be affected by the presence of pain and moving a complete challenge with even partial or permanent disability. This in turn severely affects the patient's quality of life. Gout also presents a major association with comorbidities which accounts for stroke, diabetes, myocardial infarction and hypertension, and a few others to the list⁵. From the epidemiological data, it is found that an incidence and prevalence of gout have an overall seen accelerating increase in the past few years⁶. Still enough data, especially in the emerging countries for gout is not available, thus demonstrating a need for more research regarding the disease to dig out incidence about a geographical variation with other related risk factors. Previous studies have demonstrated that patients typically receive little education on lifestyle modification and medication adherence^{7,8}.

This study investigated gout with the intent of evaluating the understanding of patients suffering from gout within the region of Lahore, Pakistan as lately, no such research was found through an extensive literature survey. The research hypothesized that considerable numbers of patients are unaware of

the basic understanding of the disease and the importance of medication adherence and lifestyle modifications. A better knowledge of such issues would help tackle the barrier and ensure a better quality of life. The results of current research could be informative for the clinicians and shall serve as a guideline.

METHODS

The study was descriptive cross-sectional research on sample size (n=203). The data was collected from September 2020 to March 2021. The data collection questionnaire was simple, easy to understand, and representative of the research objective. All the patients were briefed about the purpose of the study before the collection of the data. Ethical approval was obtained on December 10th, 2019 from the Institutional Review Board (IRB) of the University of the Central Punjab Lahore, Pakistan (Ref: UCP/FOP/368/1219).

In inclusion criteria, gout patients (serum uric acid more than 6mg/dl) living in Lahore were the subjects of the study. Only those participants were considered that were willing to contribute. In exclusion criteria, patients other than Lahore were not considered for current research. Also, patients unwilling to participate were excluded.

A simple and objective-oriented questionnaire was devised for the collection of information about subjects. The questionnaire was divided into different sections to collect comprehensive data regarding gout from the patients. The credibility of the questionnaire was tested by Cronbach's Alpha which is found to be 0.72 revealing that the data collection form is reliable. The data collection tool was prepared after the study of previous literature^{9,10} and divided into the following sections: 1. It consisted of patient consent and willingness to participate in this research. After approval from patients, they were further directed to fill out the questionnaire. 2. This section was added to collect the basic demographics information i.e., gender, age and marital status. 3. This section was devised to have clinical information from patients suffering from gout. This included: patient weight, uric acid level, gout previous attacks, number of joints affected, management, and treatment. The uric acid level was taken from the patient's diagnostic laboratory report to ensure that patient was suffering from gout. 4. This section was made to assess the basic knowledge, perception, and practices about gout.

The data were analyzed using the software SPSS (Statistical Package for the Social Sciences IBM, version. 22). Descriptive statistical analysis was performed to determine the frequencies, percentages, and standard deviations. Dependent

variables association/correlation was measured by the Pearson Chi-square. A *p*-value ≤ 0.05 was considered statistically significant.

of the undertaken study showed that male patients were predominant 127 (62.56%) as compared to females 76 (37.44%) as shown in Figure 1 and all patients were above 30 years (Table 1).

RESULTS

A total of 203 responses were obtained. The results



Figure 1: Gender and marital status of the participants.

Table 1: Descriptive statistics of the demographic, anthropometric and general information of the patients.

Parameters										
Age n (%)										
31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75		
31 (15.27)	29 (14.29)	35 (17.24)	22 (10.84)	25 (12.32)	32 (15.76)	16 (7.88)	11 (5.42)	2 (0.99)		
Weight (Kg) n (%)										
61-65	66-70	71-75	76-80	81-85	86-90	91-95	96-100	101-105	106-110	110-115
11 (5.42)	25 (12.32)	22 (10.84)	38 (18.72)	29 (14.29)	39 (19.21)	19 (9.36)	16 (7.88)	3 (1.48)	0	1 (0.49)
Uric acid level (mg/dl) n (%)										
7.0-8.0			8.0-9.0				9.0-10.0			
121 (59.61)			72 (35.47)				10 (4.93)			
Gout diagnosed (years) n (%)										
<1	1-2	2-3	3-4	4-5	5-6	6-7	>7			
3 (1.48)	22 (10.84)	44 (21.67)	42 (20.69)	41 (20.2)	35 (17.24)	10 (4.93)	6 (2.96)			

Number of gout attacks in the past years n (%)					
2 to 4		5 to 8		9 to 12	
52 (25.62)		113 (55.67)		38 (18.72)	
No of joints affected due to gout n (%)					
3 joints	4 joints	5 joints	6 joints	7 joints	8 joints
20 (9.85)	42 (20.68)	30 (14.77)	41 (20.19)	20 (9.85)	50 (24.63)
Severity of pain n (%)					
Mild		Moderate		Severe	
82 (40.39)		64 (31.52)		57 (28.07)	
Current gout treatment n (%)					
Allopurinol/ febuxostat/ colchicine/NSAIDS		Diet modification or other natural treatment		Both	
101 (49.75)		31 (15.27)		71 (34.97)	

Most patients fall between 40 to 45 age groups followed by 46 to 50. Information regarding patients' weight in table 1 showed that all patients weighed were more than 60 kg. Most of the population weighs 86 kg to 90 kg.

In addition to this, clinical information obtained from the gout patients is also summarized in Table 1. All patients who presented high uric acid levels were raised and the maximum range was found between 9mg/dl to 10mg/dl. A positive correlation was found between the risk of developing hyperuricemia and obesity as weight is a dependent factor. History of all patients since diagnosis was evaluated to check chronicity of the disease and it was found to be as 2 year-3 years (21.67%)>3 year-4 years (20.69%)>4 year-5 years (20.2%)>5 year-6 years (17.24%)>1 year-2 year (10.84%)>6 year-7year (4.93%)> more than 7 years (2.96%)> Less than 1 year (1.48%). The results have revealed that most of the respondents were suffering from gout for a long time. Patients were also assessed in terms of the number of their joints affected by gout. Most of the patients 50 (24.63%) affected the number of joints was eight and on opposite extreme 20 (9.85%) minimum of three joints was affected. Outcomes regarding the severity of pain based on patient experience are mild (40.39%)>moderate (31.52%)>severe (28.07%). Related to treatment 101 (49.75%) were on Allopurinol/ febuxostat/ colchicine, 31(15.27%) followed diet modification or other natural treatment 71 (34.97%).

Outcomes of knowledge, attitude, and practices of patients towards gout were gathered and plotted in Table 2. All patients confirmed that they knew about their disease. While 185 (91.1%) patients had no previous family history of gout with 18 (8.9%) patients having a family history. However, a positive correlation was demonstrated between family history and developing hyperuricemia. Twenty-three patients (11.3%) showed the habit of smoking. A negative correlation is found between the serum uric acid level and smoking habit. Patients (72.4%) knew that gout is caused by higher uric acid levels as compared to the 56 (27.6%) who lacked any information on the subject. Only 129 (63.5%) were familiar with signs and symptoms of gout and reported them, such as inflammation, pain, and swelling of the joints while 174 (36.5%) patients were failed to define their disease presentation. Patients (100%) agreed that a healthy lifestyle can reduce the risk of gout. Herbal medications (12.3%) were used for the treatment of gout while 178 (87.7%) did not. Patients (94.1%) claimed that gout affects their daily routine and 190 (93.6%) reported that gout treatment put an extra financial burden on them. All patients claimed that gout has affected their mental health. Restricted mobility was also experienced by 173 (85.2%) while 30 (14.8%) did not experience it yet. Patients (77.3%) preferred to visit the rheumatologist for treatment and their routine checkup while 46 (22.7%) used to visit primary health care providers or homeopathic doctors. Thus, patients (44.8%) seek help from the pharmacist for the counseling or management of disease as compared to 112 (55.2%).

Table 2: Knowledge, attitude and practices assessment of the patients.

Perspectives	Frequency (n) (%)		Meant±SD	p- Value
	Positive	Negative		
Smokers	23 (11.3)	180 (88.7)	0.11±0.32	0.005
The patient was similar with the term gout	203 (100)	0	1±0.00	.000
Family history of the gout	18 (8.9)	185 (91.1)	0.09±0.29	0.55
Do you know that gout is caused by a high uric acid level in the blood?	147 (72.4)	56 (27.6)	0.72±0.45	.000
Do you aware of the sign and symptoms of the disease?	129 (63.5)	174 (36.5)	0.64±0.48	.000
Do you think a healthy lifestyle can reduce the risk of gout?	203 (100)	0	1.00±0.00	0.004
Have you ever used herbal medications for the treatment of gout?	25 (12.3)	178 (87.7)	0.04±0.21	0.696
Gout affects your daily routine	191 (94.1)	12 (5.9)	0.94±0.24	.000
Treatment of gout put an extra financial burden	190 (93.6)	13 (6.4)	0.06±0.25	0.416
Do you feel depressed due to chronic pain associated with gout?	203 (100)	0	1.00±0.00	0.03
Gout causes a restriction in your mobility	173 (85.2)	30 (14.8)	0.01±0.28	0.001
Gout treated by Rheumatologist (yes); others (No)	157 (77.3)	46 (22.7)	0.77±0.42	.000
Seek help from the pharmacist for the management of gout	91 (44.8)	112 (55.2)	0.01±0.32	.000

*All titles p-value was found to be <0.05 which showed the statistical significance of the data.

DISCUSSION

Gout is one of the oldest and most prevalent forms of inflammatory arthritis. The incidence of this disease has been rising over the past decades, suggesting an alarming public health concern. Yet the incidence of the disease is found to be uneven across the globe with most cases in the Pacific regions⁹. A part is played by the genetic factors in the development of gout while some ethnic groups are prone to gout in comparison to any other. This together gives a rising rate of mortality and puts down the life expectancy rate¹⁰. The outcomes of this research revealed that men are more affected than females. Men are at four times higher risk as compared to women. Females enjoy this leverage due to the presence of the estradiol that antagonist the synthesis of urate crystal¹¹. The thirties are described as the minimum age when gout was first reported and most of the patients. While most patients were found in the range of 41 years to 45 years which indicates now disease appears at an early age. Gout mostly occurs at age 65 plus and one of the main reasons for gout appearance at an early age is obesity¹².

Most of the patients were found to be obese with raised levels of serum uric acid. This study showed a positive correlation between weight and developing hyperuricemia. Higher obesity and weight gain were found as strong risk factors for gout in men, while weight loss is protective^{13,14}. Only a small fraction of the patients 3 (1.48%) have a gout diagnosis history of less than 1 year and remaining all the

patients (98.52%) reported that they were suffering from gout for last many years. This explains the chronicity of the disease. In this research, the range of affected number of joints by gout is 3 to 8 and experiences severe pain. Gout is a chronic disease with several stages. Over several years the duration and patients with untreated gout may evolve from monoarticular or oligoarticular acute gout attacks to more frequent and recurrent polyarticular attacks, and chronic tophaceous gout may ensue¹⁵. Concerning the treatment, many patients were using one or a combination of drugs which included allopurinol, febuxostat, colchicine and non-steroidal anti-inflammatory drugs (NSAIDs). Evolution in the evidence base used for allopurinol, colchicine, and oral glucocorticosteroids administration has been validated, improved and found to be a cost-effective treatment strategy for most patients^{16,17}.

Few of the patients only relied on intake herbal medications and dietary modifications along with a reasonable number of patients with allopathic treatment followed with change lifestyle and diet modifications. A controlled diet with fractional or full removal of risk factors along with a support of a healthy lifestyle promises prevention¹⁸. Herbal medications are chosen in clinical practice to enhance uric acid removal which can be useful for the cure and management of gout but more research is required to ensure the efficacy of herbal treatment¹⁹⁻²¹.

A small number of the patients were found to be smokers. No correlation was found between smoking and the risk of developing hyperuricemia. Earlier studies showed that smoking is not associated with developing gout, but the results remain debatable and further studies are still needed to endorse outcomes²². Few patients have claimed that they have a family history of hyperuricemia and a positive correlation is existing between family history and developing hyperuricemia. Major advances have been made in understanding the link between inherited susceptibility to gout and altered renal urate disposition¹⁶.

Results showed that the patients agreed that gout affects their daily routine activities, disease put an extra burden on them, also reported that restriction in mobility makes them dependent on others and the mental health of all the patients is badly affected. Acute pain, subcutaneous tophi, and persistence of low-grade inflammation for a longer time cause deformation of joints, restricted mobility, and permanent disability that negatively influence the patient's QoL. Self-management of gout is quite complex. To effectively manage gout, patients should be aware of the influence of medication, daily routine and diet on their current medical condition. The deficit in patient education may result in medication non-adherence and poor quality of life²³⁻²⁵. Most of the patients preferred to go to rheumatologists instead of primary health care providers for their routine checkups and seek help from the pharmacist for better management of the disease²⁴.

Besides the treatment of bone-related disorders, rheumatologists are increasingly willing to discuss areas that are not directly related to drug treatment of joint diseases, such as quality of life and education of patients^{26,27}. Enhanced pharmacy services have been identified as a mechanism to address medicines and drug-related problems. In the management of gout patients, the role of pharmacists in primary health care should be elaborated especially in the area of the current provision of education to people living with gout and in monitoring medication adherence in patients²⁸⁻³⁰.

CONCLUSION

Gout is seen to be a prevalent form of inflammatory arthropathy and predominately males are affected as compared to females. The risk rises in all gender with age and obesity while adoption of a healthy lifestyle and some modifications can reduce the issue like pain in the joints, swelling, and movement disability. Better diagnosis, timely treatment, and integration of pharmaceutical care can better the patient's quality of life, overall bringing down the

rate of mortality and morbidity.

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CONFLICT OF INTEREST

The authors declared no conflict of interest.

ETHICS APPROVAL

Ethics clearance (Ref: UCP/FOP/368/1219) was obtained from the Institutional Review Board (IRB) of the University of the Central Punjab Lahore, Pakistan.

PATIENT CONSENT

The data was collected after the consent of the patients.

AUTHORS' CONTRIBUTION

KA has designed the study. MA, MQ, AS, ST and RK collected the data. KA, SA, AM and FA have performed the statistical analysis and interpretations. KA, SA, AY and RK wrote the manuscript. MA, MQ, AS, ST and FA have edited the final document. All authors have read equally contributed and approved the final version of the submission.

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