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## Pattern and treatment of Gout in Bangladesh: a hospital based survey at Dhaka city, Bangladesh

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### ABSTRACT

Gout is a common metabolic disorder which occurs due to excessive deposition of uric acid in different bone joints. Increasing life expectancy, life style change, changes in diet are causing an increased incidence of the disease nowadays. The present study was aimed to understand the pattern and treatment of gout in Bangladesh. 150 patients at four tertiary care hospitals in Dhaka city were surveyed. The findings of the present study suggests that both male and female are suffering from the disease and age seems to be related to the disease as 62% of gout patients were found over 50 years of age. Body weight may be a contributing factor of the disease. Most of the gout patients under the survey were suffering from high blood pressure (65.33%). Primary gout was found more prevalent in this investigation (70.66%) and viral hepatitis was found to be the most common cause of the disease (50%). The patients presented common sign and symptoms of gout.

**Keywords:** Metabolic disorder, uric acid, obesity, steroid injection, dislocated bone

### INTRODUCTION

Anton van Leeuwenhoek described the microscopic appearance of uric acid crystals in 1679. The word gout was initially used by Randolphus of Bocking, around 1200 AD. It is derived from the Latin word gutta, meaning "a drop" of liquid (Pillinger *et al.*, 2007). Gout has, however, been known since antiquity. Historically, it has been referred to as "the king of diseases and the disease of kings" or "rich man's disease". The first documentation of the disease is from Egypt in 2,600 BC in a description of arthritis of the big toe. The Greek physician Hippocrates around 400 BC commented on it in his Aphorisms, noting its absence in eunuchs and premenopausal women. Gout is a metabolic disorder characterized by excessive concentration of uric acid in the blood occasioning the deposition of sodium urate in the joints particularly the extremities and notoriously the great toe (Copeman, 1964). It is also known as podagra when it involves the big toe is a medical condition usually characterized by recurrent attacks of acute inflammatory arthritis a red, tender, hot, swollen joint. The metatarsal-phalangeal joint at the base of the big toe is the most commonly affected (50% of cases). However, it may also present as tophi, kidney stones or urate nephropathy. It is caused by elevated levels of uric acid in the blood which crystallizes and is deposited in joints, tendons and surrounding tissues (Eggebeen, 2007). Gout affects around 1–2% of the Western population at some point in their lifetimes, and is becoming more common. Rates of gout have approximately doubled between 1990 and 2010.

This rise is believed to be due to increasing life expectancy, changes in diet and an increase in diseases associated with gout, such as metabolic syndrome and high blood pressure (Weaver, 2008).

A number of factors have been found to influence rates of gout, including age, race and the season of the year. In men over the age of 30 and women over the age of 50, prevalence is 2% (Winzenberg and Buchbinder, 2009). In the United States, gout is twice as likely in African American males as it is in European Americans. Rates are high among the peoples of the Pacific Islands and the Maori of New Zealand, but rare in Australian aborigines, despite a higher mean concentration of serum uric acid in the latter group (Roberts-Thomson RA and Roberts-Thomson PJ, 1999).

It has become common in China, Polynesia and urban sub-Saharan Africa. Some studies have found attacks of gout occur more frequently in the spring. This has been attributed to seasonal changes. Gout can present in a number of ways, although the most usual is a recurrent attack of acute inflammatory arthritis such as a red, tender, hot, swollen joint (Chen and Schumacher, 2008). The metatarsal-phalangeal joint at the base of the big toe is affected most often, accounting for half of cases. Other joints, such as the heels, knees, wrists and fingers, may also be affected. Joint pain usually begins over 2–4 hours and during the night. The reason for onset at night is due to the lower body temperature then (Schlesinger, 2010).

## Methodology

### Participants

The current study was conducted at Dhaka Medical Collage Hospital, Bangabandhu Sheikh Mujib Medical University, Square Hospital and Community Medical College and Hospital from 5th January, 2011 to 30th May 2011. The survey was conducted on 150 patients with sign and symptoms of gout and patients with drug therapy with the disease. Physicians at the said hospitals were also consulted. Any patient who developed some sign and symptoms of Gout came to the Medicine Department of the studied institutions were included in this study regardless of age and sex. The patient who did not develop enough sign and symptom were excluding from the study. Other than direct questioning no data were obtained over the telephone, e-mail, mail etc.

### Questionnaire Design

A questionnaire was devised which included information regarding the patient's identity, background history, biophysical characteristics, type of gout the patient suffering from, underlying cause(s), sign and symptoms, types of treatment, drug treatment. The technical terms were explained in details for better understanding of the participants. The patients were informed about the purpose of the study by responsible interviewer before answering the questions and it was also made clear to the participants before question answering session that who did not want to participate in the study should feel free to withdraw. No multi-response answers for single-response questions were considered for data interpretation. The interviewer has the

theoretical as well as practical knowledge of data collection techniques.

### Statistical Analysis

Statistical analysis was performed using Microsoft Office Excel 2007 software.

## RESULT AND DISCUSSION

General characteristics and Biophysical characteristics of the studied patients at four tertiary care hospitals in Bangladesh are presented in Table 1 and 2. Gout types, causes, and sign and symptoms observed during the survey at four tertiary care hospitals in Bangladesh are presented in Table 3.

**Table 1:** General characteristics of the patients with gout.

Characteristics	Number (n=150)	Percentage (%)
<b>Sex</b>		
Male	86	57.33
Female	64	42.66
<b>Age (in years)</b>		
Up to 20	0	0
21-30	4	2.66
31-40	13	8.66
41-50	40	26.66
51-60	51	34
61-80 or more	42	28
<b>Living area</b>		
Rural	74	49.33
Urban	61	40.66
Sub-urban	15	10
<b>Marital status</b>		
Married	143	95.33
Unmarried	7	4.66
<b>Educational status</b>		
Illiterate	50	33.33
Can read and write a letter	29	19.33
Minimum 16 years of schooling	57	40
Graduate or higher	14	9.33
<b>Occupational status</b>		
Unemployed	12	8
Student	17	11.33
House wife	21	14
Employed	63	42
Business	37	24.66

From the survey obesity was found to be the most prevailing cause of gout (63.33%). 12% patients were found to inherit the disease genetically. As per the survey result, ageing is closely related to gout (62% of patient with gout were aged over 50 years). Apart from these reasons, use of some medications (e.g. diuretics, low-dose aspirin, levodopa), dietary factors, consumption of alcohol, other illness (e.g. leukemia, lymphoma) were found to be associated with or may cause gout in patients. In this survey we found most of the patients were suffering from primary gout (70.66%). Most of the patients with the disease were on drug treatment (52.66%). The drugs used to treat or manage gout include some pain relieving drugs, NSAIDs. Omeprazole was found to be the most popular proton pump inhibitor being used in gout patients (Table 4). Most of the patients developed and presented common sign and symptoms of the disease. Severe pain at and around the joint (63.33%), chills and mild fever (56%), Red, shiny and tense skin over the affected area which may peel after a few days (48.66%), feeling like "crushing" or a dislocated

bone (35.33%) and loss of appetite (32%) were the most commonly reported sign and symptoms. In this current study it was observed that the gout occurs commonly in males then females. The reason for the increased incidence of gout in male are related to several factors like metabolic diseases, toxic chemicals, use of certain drugs including diuretics, low dose aspirin, drinking alcohol etc. Elderly patients (age within 51-60 years) mostly encountered the diseases. In general the incidence of gout is higher in elderly patients because of age related physiological disorders.

**Table 2:** Biophysical characteristics of the patients with gout.

Characteristics	Number (n=150)	Percentage (%)
<b>Weight (kg)</b>		
40-45	0	0
46-50	4	2.66
51-55	11	7.33
56-60	13	8.66
61-65	19	12.66
66-70	25	16.66
71-75	30	20
76-80	48	32
<b>Height (ft)</b>		
5-6	105	70
4-5	45	30
<b>Pulse rate</b>		
Normal	131	87.33
Abnormal	19	12.66
<b>Body temperature</b>		
Normal	135	90
Abnormal	15	10
<b>Blood pressure</b>		
Low	11	7.33
High	98	65.33
Normal	41	27.33

**Table 3:** Gout types, causes, and signs and symptoms.

Concerned area	Number (n=150)	Percentage (%)
<b>Types</b>		
Primary	106	70.66
Secondary	44	29.33
<b>Causes</b>		
Viral hepatitis	80	50
Toxic chemical induced	8	5.71
Disorder of the gall bladder or pancreatic infection	7	5
Other infections	13	9.29
Blood transfusion	2	1.43
Pregnancy	5	3.57
Drug induced	20	14.29
Metabolic diseases	5	3.57
Sharing needle, syringe or other drug equipment	7	5
Alcohol induced	3	2.14
<b>Sign and symptoms</b>		
Jaundice	40	28.57
Weight loss	40	28.57
Loss of appetite	15	10.71
Diarrhea	7	5
Itchy skin	8	5.71
Nausea and vomiting	15	10.71
Abdominal pain and discomfort	5	3.57
Yellow discoloration of urine and stool	10	7.14

The drug category used to manage the gout diseases were NSAIDs, colchine, corticosteroids etc. Acute attacks of gout can be treated with nonaspirin, nonsteroidal anti-inflammatory drugs (NSAIDs) such as naproxen sodium, ibuprofen, or indomethacin. In some cases, these drugs can aggravate a peptic ulcer or existing kidney disease and cannot be used. Doctors sometimes also use colchicine, especially in cases where nonsteroidal anti-

inflammatory drugs cannot be used. Colchicine may cause diarrhea, which tends to go away once the patient stops taking it. Corticosteroids such as prednisone and adrenocorticotropic hormone may be given orally or may be injected directly into the joint for a more concentrated effect. While all of these drugs have the potential to cause side effects, they are used for only about 48 hours and are not likely to cause major problems. However, aspirin and closely related drugs (salicylates) should be avoided because they can ultimately worsen gout (Parker, JN and Parker PM, 2002).

**Table 4:** Types of Drugs Used to treat Gout Patients .

Types of drugs	Percentage (%)
Indomethacine	92%
Naproxen Sodium	87%
Colchicine	43%
Allopurinol	32%
Paracetamol	91%
Steroid injection	21%
Prodenecid and Fulsin Pyrazone	4%
Omeprazole	94%

## CONCLUSION

Question regarding to prevention of Gout diseases left unanswered in Bangladesh mainly due to lack of systemic mechanism of monitoring. Gout is found in higher rates in people with high blood pressure, coronary artery diseases and heart failure. Hyperuricemia, in fact, has been associated with a higher risk of death from heart conditions. The study's also found an association between gout and having the metabolic syndrome, a collection of problems, such as abnormal obesity, high blood pressure. This syndrome increases a person's risk of heart disease and diabetes. Clinical Pharmacists need to be empowered with knowledge to assist prescribing clinicians in order to maximize therapeutic outcomes when treating gout. The present study may contribute to the understanding of the disease pattern in Bangladesh and may aid in more in depth research in this area.

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