



## PREVALENT PRACTICES IN THE MANAGEMENT OF GOUT: A THREE CENTRE STUDY FROM INDIA.

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### ABSTRACT

**AIM:** To study the prevalent prescription practices for the management of gout.

**SETTINGS AND DESIGN:** The study was conducted at three tertiary care centres located in Kochi, Pune and Jaipur between 01 January 2018 and 30 June 2019. Prescriptions of gout were audited by one rheumatologist and two haematologists from the first centre, and one physician each in the second and third centres respectively.

**METHODS AND MATERIAL:** A total of 350 prescriptions (150 in the first centre, 100 each in the other two centres) of patients with gout were audited. The areas examined included clinical examination notes, workup for associated comorbidities, management of acute gout and advice regarding lifestyle modifications.

**RESULTS:** Prescriptions of a total of 350 patients (321 males and 29 female) with acute and chronic gout were audited. Their age ranged from 34 to 82 years. Deficiencies were observed in the following areas, viz. management of acute gout, evaluation for associated comorbidities such as obesity, metabolic syndrome and renal calculi, and dietary advice given to patients. Seven percent of the patients were initiated on urate lowering therapy during acute attack of gout.

**CONCLUSIONS:** The management of gout at the primary care level remains suboptimal, and highlights the need for greater emphasis on the management of rheumatological disorders including gout in the undergraduate medical curriculum.

**KEYWORDS :** Gout, Steroids, Colchicine, Uric Acid

### INTRODUCTION:

Gout caused by hyperuricemia with resultant accumulation of monosodium urate crystals in joints, is the most common form of inflammatory arthritis (1,2). Previously regarded as the disease of kings, its prevalence has risen over the last few decades, due to dietary factors (alcohol, animal purines and fructose), sedentary lifestyle, obesity, metabolic syndrome, hypertension, diuretic use and chronic kidney disease (3). The three stages of gout are asymptomatic hyperuricemia, acute and intercritical gout, and chronic gouty arthritis. Monoarticular involvement is seen in 85-90% of the first attacks with the first metatarsophalangeal (MTP) joint being the most commonly affected.

The therapeutic options for the management of acute gout include non-steroid anti-inflammatory drugs (NSAIDs), colchicine and corticosteroids. In case of mono-articular involvement, intra-articular steroids can also be used. When gout is progressive, it can result in tophaceous deposits and joint damage. Urate lowering therapy (xanthine oxidase inhibitors and uricosurics) is the first line treatment for chronic gout.

After gouty arthritis, renal problems are the second most common complication of hyperuricemia with nephrolithiasis occurring in 10% to 25% of patients with primary gout. Renal insufficiency is frequently associated with hyperuricemia and gout. Moreover, gout is also

associated with a number of conditions such as obesity, hypertriglyceridemia, glucose intolerance and the metabolic syndrome, hypertension, atherosclerosis, and hypothyroidism. A diagnosis of gout warrants evaluation for coexistence of these disorders. Patient education regarding dietary and lifestyle modifications plays an important role in the management of gout.

Although a number of guidelines for the management of gout have been published, the deficits in the quality of care provided to patients with gout have been well documented (4,5,6,7). This study primarily aims at auditing prescriptions of patients diagnosed with gout and referred by general practitioners, physicians and orthopaedic surgeons to the referral centres.

#### MATERIALS AND METHODS:

The study was conducted between 01 January 2018 and 30 June 2019 in three tertiary referral centres located at Kochi, Pune and Jaipur respectively. One hundred and fifty prescriptions were audited in the first centre and one hundred each in the second and third centres respectively. The audit was conducted by two haematologists and one rheumatologist in the first centre and one physician each in the second and third centres. These prescriptions were written by general practitioners, physicians and orthopaedic surgeons. The parameters considered while auditing the prescriptions included age, sex, weight (in kgs), height (in cms), body mass index (BMI), blood pressure, blood urea, serum creatinine and uric acid, fasting and post prandial blood sugar, glycosylated haemoglobin (HbA1c), serum lipid profile and ultrasound of the kidney, ureter and bladder.

#### RESULTS:

Prescriptions of a total of 350 patients (321 males and 29 female) with age ranging from 34 years to 82 years, who were diagnosed with gout were audited. This included patients with acute mono-articular or oligo-articular/poly-articular gout as well as chronic tophaceous gout. According to the diagnosis mentioned in the prescriptions, mono-articular gout was observed in 263 patients, oligo-articular/poly-articular gout in 7 patients. Seven patients were diagnosed with chronic tophaceous gout. In seventy-three patients, diagnosis was mentioned as 'acute gout' and number of joints involved was not mentioned.

Weight was documented in 44 patients and height in 17 patients. BMI was calculated in 6 patients, out of which the height and weight in 2 patients were not documented. Four patients had all the three parameters viz., weight, height and BMI recorded. Out of the 44 patients in whom weight was recorded, 13 were recorded to be obese. In 83 patients it was recorded that the patient was overweight (45) or obese (38); however weight in these patients were not documented.

Blood pressure (BP) was recorded in 252 of the 350 patients. One hundred and thirty-eight patients were already on anti-hypertensive drugs, of whom the BP was well controlled in 128 patients. An elevated BP reading was recorded for the first time in 52 patients. High prevalence of hypertension, was probably due to the fact that two out of three centres were in defence services, and pickup rate of hypertension may be high as the soldiers were undergoing periodic medical examination.

Serum uric acid levels were done in all 350 patients and found to be elevated in 313 patients (Table 1). Hyperuricemia was defined by serum uric acid exceeding 6.0 mg% in females and 7.0 mg% in males. Blood urea and/or creatinine were done in 156 patients and were elevated in 13 of them. Serum lipid profile was recorded in 198 patients in whom raised low density lipoprotein (LDL) levels alone were found in 24 patients and raised triglyceride levels alone were found in 36 patients. In 16 patients both LDL and triglyceride levels were found to be elevated. In 27 patients, only serum cholesterol was documented and was found to be elevated in 10 of them. Glycosylated haemoglobin (HbA1c) was recorded in 12 patients and found to be elevated in 8 of them.

**Table 1: Serum uric acid levels in 350 patients.**

Serum uric acid levels (mg%)	Number of patients
Less than 5.0	0
5.1 to 6.0	3
6.1 to 7.0	38(male-34, female-4)
7.1 to 8.0	168

8.1 to 9.0	137
9.1 to 11.0	4
More than 11.0	0

Ultrasound of the kidney, ureter and bladder done in only 27 patients, in whom 5 had ureteric/renal calculi.

Out of the 343 patients with acute gout, 340 patients received NSAIDs (with proton pump inhibitor/ranitidine in 330). The commonly used NSAIDs included sustained release formulation of indomethacin and diclofenac. Nine patients received a combination of oral steroids and NSAIDs, five patients received a combination of NSAIDs with colchicine and three patients received oral steroids alone. Urate lowering therapy (allopurinol-7 and febuxostat-17) was initiated in 24 patients during the acute gouty attack (Table 2).

**Table 2: Urate lowering therapy in patients with acute gout (n=24)**

Drug	Starting dosage (mg/day)	Number of patients
Allopurinol	100	1
	200	1
	300	5
Febuxostat	40	10
	80	7

Dietary advice was given to 85 patients and consisted of avoidance of alcohol, red meat, milk/dairy products, pulses and certain vegetables (Table 3).

**Table 3: Dietary advice to patients with gout**

Items to be avoided	Number of patients
Alcohol	25
Red meat	48
Eggs	6
Milk/dairy products	22
Pulses	18
Milk/dairy products and pulses	11
Certain vegetables (brinjal, beans etc)	7

#### DISCUSSION:

It is evident from our study that patients with acute gouty arthritis are usually managed with NSAIDs alone and in a few cases in combination with colchicine or oral steroids. About 7% of the patients in this study had received urate lowering therapy (ULT) during acute attacks of gout. This is not in accordance with the existing recommendations for the management of this condition (4,5).

A number of deficiencies were found in the clinical examination as regards to documentation of weight, height, BMI and blood pressure reading. Investigations such as renal function tests, blood glucose, serum lipid profile and ultrasonography of the urinary system were found to be lacking in the laboratory and radiological workup in a significant number of patients. This highlights the fact that there is a perception amongst some general practitioners and physicians that gout is a disease of joints and its association with metabolic syndrome seems to be less recognised. Moreover, systematic assessment for the presence of associated comorbidities (obesity, renal impairment, hypertension, ischemic heart disease, diabetes mellitus, dyslipidemia etc) form an integral part of various guidelines or recommendations for the management of gout. (4,5).

While advising lifestyle and dietary modifications, some doctors have advised patients with gout to avoid milk and dairy products, pulses and certain vegetables such as brinjal and beans without any scientific basis. This is in contradiction to a number of studies which have found a significant inverse relationship between low fat dairy consumption and serum uric acid levels (8,9,10). Consumption of oatmeal and purine-rich vegetables (e.g., peas, mushrooms, lentils, spinach, and cauliflower) is not associated with an increased risk of gout.

The above deficiencies observed during the audit of prescriptions of 350 patients with gout referred to the three tertiary referral centres highlights the need for greater emphasis on rheumatological disorders including gout in the undergraduate medical curriculum.

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