

Acute Gout in Hospitalized patients in Sarawak General Hospital

Teh C L, Chew K F, Ling G R

Unit of Rheumatology, Department of Medicine, Sarawak General Hospital, Sarawak, Malaysia

SUMMARY

We performed a prospective study of all hospitalized patients with a diagnosis of Gout in Sarawak General Hospital from 1st July 2011 to 1st July 2012. There were a total of 126 patients in our study of which 112 (88.9%) were males. The majority of our patients were from the indigenous populations (71.7%). They have a mean age of 60.0 ± 14.2 years. Most of our patients were overweight (68%) with comorbidities of Hypertension (78.6%), Chronic Kidney Failure (48.4%), Type II Diabetes Mellitus (30.2%), Dyslipidemia (27.8%) and Ischaemic Heart Disease (11.9%). Polyarticular gouty arthritis was the main presenting pattern during hospitalization (88.1%). The mean length of stay for our patients was 9.8 ± 6.0 days which was significantly longer than the mean length of stay for other patients without gout ($p < 0.05$). Only 17 patients had gout on admission and the majority developed gout during hospitalizations. Our patients were admitted respectively for medical problems (45.4%), surgical problems (28.6%) and orthopaedic problems (9.2%). Colchicine (73.8%) and steroid (40.5%) were the main stays of treatment for our patients. Our hospitalized gout patients were complicated patients with multiple comorbidities.

KEY WORDS: *gout; hospitalizations*

INTRODUCTION

Acute gout is the most common inflammatory arthritis worldwide. Acute gout is characterised by formation of monosodium urate (MSU) crystals in the synovial fluid of joints and soft tissues. Recent epidemiological data showed that hospitalizations for acute gout to be on the rising trends in developed countries^{1,2}. Gout admissions rose at 5.5% per year in New Zealand and at 7.2% per year in England from 1999-2009². This has been attributed to increased longevity, recent shifts in diet and lifestyle and improved medical care. Almost all data on hospitalized gout patients were from Western countries³⁻⁵. There are no published data on hospitalized gout patients from Asia.

Sarawak, located in the island of Borneo is the largest state of Malaysia. Sarawak has a resident population recorded in the year 2005 census⁶ of 2.316 million. The majority are the native population (71.6%) which comprises of Iban (29.9%), Malay (21.1%), Bidayuh (8.4%), Melanau (5.4%) and diverse smaller ethnic groups (5.8%). The largest non-indigenous group is the Chinese (27.5%). Less than 1% are from other ethnic origin. Sarawak General Hospital is a 800-bed tertiary public hospital which is located in Kuching, the capital city of Sarawak. It is

the biggest public hospital providing sole Rheumatology care in Sarawak. The aim of our study is to describe the profile of acute gout in hospitalized patients in our centre.

METHODS

We conducted a prospective study of all hospitalized patients with a diagnosis of Gout who received treatment in Sarawak General Hospital. The diagnosis of Gout was based on the 1987 revised American College of Rheumatology (ACR) criteria⁷. This study was conducted over a one-year period from 1st July 2011 to 1st July 2012.

Demographics and clinical features of patients were collected during the study period. Causes of hospitalizations, length of stays and treatment regimes were also collected. Treatment regimes of acute gout were based on the Malaysian Clinical Practice Guideline of Management of Gout published in 2008⁸.

Analysis was performed using SPSS version 10.0, (SPSS, Chicago IL, USA). Standard statistical methods were used to provide descriptive statistics.

RESULTS

There were a total of 126 patients in our study. The demographic data of our patients is shown in Table I. The majority of our patients were male (112 [88.9%] male compared to 14 [11.1%] female). Gout affects all ethnic groups in Sarawak but showed preponderance towards the native population, which consisted of Malay (39.7%), Iban (31.7%) and Bidayuh (11.1%).

Our patients have a mean age of 60.0 ± 14.2 years. They have a mean duration of illness of 2.5 ± 8.7 years (0-30). The diagnosis of gout was made based on clinical criteria in 119 (94.4%) of our cases. Only 7 cases were diagnosed based on crystal identification. Thirty-six (28.6%) of our patients have family history of gout in their first-degree relatives.

The majority of our patients (68.3%) were overweight and they have the following comorbidities: Hypertension (99 [78.6%]), Chronic Kidney Failure (61[48.4%]), Type II Diabetes Mellitus (38[30.2%]), Dyslipidemia (35[27.8%]) and Ischaemic Heart Disease (15[11.9%]). The main cause of chronic kidney failure in our patients was Diabetes Mellitus (50%). There were four cases of hydronephrosis due to uric acid stones. The common complications of gout in our patients were tophi (63 [50.0%]), joint deformities (40[31.7%]) and kidney stones (10[7.9%]). Polyarticular gouty arthritis was the main presenting feature

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Corresponding Author: Cheng lay The, Rheumatologist Sarawak General Hospital Medicine, Jalan Hospital Kuching, Sarawak 93586, Malaysia
Email: tehchenglay@yahoo.com

Table I: Demographics of study population

		Study population n (%)
Age (mean ± SD)		60.0 ± 14.2
Gender	Male	112 (88.9%)
	Female	14 (11.1%)
Duration of gout in years (mean± SD)		2.5 ± 8.7
Ethnicity	Malay	50 (39.7%)
	Iban	40 (31.7%)
	Chinese	22 (17.5%)
	Bidayuh	14 (11.1%)

Table II: Causes of hospitalization in gout patients

	Study population n (%)
Gouty arthritis	17 (13.5%)
Medical	54(42.8%)
Surgical	34 (27.0%)
Orthopaedic	11 (8.7%)

during the study period (88.1%). The main joints involved in our patients were ankles (75.4%) knees (68.3%) and first metatarsalphalangeal joints (68.3%).

The causes of hospitalization in our patients were as followed: acute gouty arthritis (17[13.5%]), medical problems (54 [42.8%]), surgical problems (34[27.0%]) and orthopaedic problems (11[8.7%]). The common medical causes for hospitalizations were renal diseases (8 [6.3%]), heart diseases (7[5.5%]) and strokes (7[5.5%]). Upper Gastrointestinal Bleeding was the main cause of surgical admission in our study (12[9.5]). Only two patients were admitted for management of renal stones. Four patients were admitted for infected tophi in orthopaedic wards.

The mean length of stay for our patients was 9.8 ± 6.0 days which was significantly longer than the mean length of stay for other patients without gout (p<0.05). The mean length of stay differed according to causes of hospitalizations: acute gout (6.44), medical causes (8.62), surgical causes (9.78) and orthopaedic causes (20.18). As shown in Fig.1, patients with acute gout stayed longer than the average patients without gout in almost all disciplines.

As for medications for treatment of gout, the following medications were used in our patients: colchicine (111[73.8%]), steroids (25[40.5%]), NSAIDs (20[15.9%]) and Cox-2 inhibitors (9[4%]). As for hypouricemic treatment, only 26.2% of our patients were on allopurinol. The mean uric acid level of our patients was 569.6+ 142.3 mcg/dl.

DISCUSSION

We described the clinical features of acute gout among hospitalized patients over a one-year period in a tertiary Rheumatology centre in Sarawak. Sarawak is the largest state in Malaysia with a widely dispersed population over an area of 124,449.5 km². Our annual infant mortality rate is 7.9 per 1000 live births and the doctor to population ratio is 1:3,707 compared to the national rate of 6.6 per 1000 live births and the doctor to population ratio of 1:1,998.⁶ This reflected the limitations in terms of access to healthcare and resource constraints in our centre.

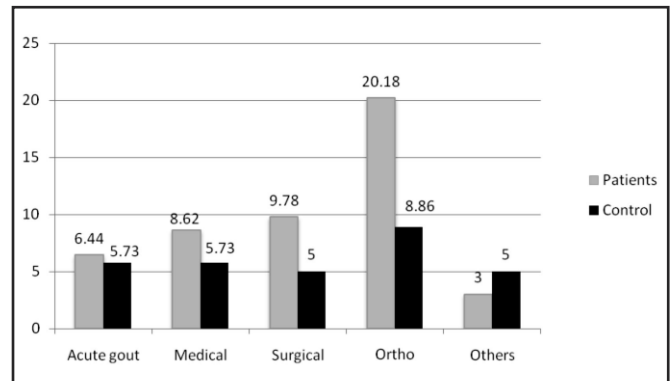


Fig. 1: Mean duration of hospital stay (day) of the study population compare with other inpatients.

Our patients are predominantly the native population whereby Malay (39.7%), Iban (31.7%) and Bidayuh (11.1%). They made up more than 50% of our cohort. This is most probably due to genetic factors in uric acid metabolism in Melanesian people as our native populations shared genetic profiles with the Maori and Pacific Islanders^{2,3}. This is further supported by the fact that 28.6% of our patients have a positive family history of gout. The majority of our patients are male and all the female patients were postmenopausal. This is consistent with worldwide findings of gout, which affects predominantly male patients¹.

The diagnosis of gout was made based on clinical criteria in the majority of our cases. Only 7 cases were diagnosed based on crystal identification.

More than half of our patients were obese. They also have a high incidence of hypertension, chronic kidney failure, hypercholesterolaemia and diabetes mellitus. This finding mirrored worldwide data on gout, which showed that gout is strongly associated with multiple comorbidities and metabolic disorders⁹⁻¹⁰. The presence of multiple comorbidities complicated the management of gout in our patients as reflected by the limitations in using NSAIDs and Cox-2 inhibitors in our patients.

Half of our patients have tophi formation and one third of them have joint deformities. Kidney stones were found in 10 patients. Polyarticular gouty arthritis was the most common presentation among our patients; in contrast to the usual monoarticular manifestation well described in textbooks. These findings showed that our patients have a high burden of gout complications due to poor control of gout prior to hospitalizations. This was also reflected by the mean uric acid level of more than 500mcg/dl. Studies have showed that patients with high uric acid load have more complications and hospitalizations^{4,5}.

The most common cause of hospitalization in our cohort was medical causes; mainly cardiovascular and renal diseases. This is not surprising as most of these patients have medical comorbidities that contributed to renal failure and heart failure. Upper gastrointestinal bleeding was the main surgical

cause of admission as a complication from NSAIDs abuse by our patients. Acute gout prolonged the length of hospitalization in almost all our patients.

The usage of NSAIDs and Cox-2 inhibitors were low in our study as they were contraindicated in most of our patients. Colchicine was used in the majority of patients. There was also underusage of allopurinol and probenecid in our patients, which contributed to inadequate treatment of gout as reflected in the low percentage of patients achieving the target uric acid level of less than 360 mcg/dl. This is supported by previous studies that showed that care of gout patients was suboptimal in primary care setting¹². Lack of prevention and adequate treatment of gout have been identified as the main reasons of increased hospitalizations¹³. Optimization of treatment should aim to achieve target uric acid level to prevent further complications in our patients.

Our current study highlighted the features of acute gout in hospitalized patients in our centre. Our patients have chronic gout with multiple comorbidities which complicated the management of acute gout.

Our current study is limited by the small sample size and short duration of the study. There is also selection bias as we only collected patients from a tertiary centre and these patients might be more complicated and severe. A larger study encompassing patients from primary care centres in Sarawak would be more reflective of the true burden of gout.

CONCLUSION

Acute gout is a serious medical problem among our hospitalized patients. Acute gout affects middle-aged men especially the indigenous populations with multiple medical comorbidities and chronic complicated gout. There is a need for better control of gout among our patients to prevent acute gout in hospitalized patients.

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Conflict of interests by authors: None

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