



Prevalence and Associated Risk Factors of Gout amongst Patients 20 Years and above Attending La Clinique De L'ouest of Bafoussam

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Abstract

For the past years, the prevalence of gout has shown increasing values from 6.8% in 2015 to 36% in 2021 and affecting up to 15.2% of men and 4.8% of women all over the world, gout still remains a life-threatening condition. Gout is the most common inflammatory arthritis and is a health condition whereby there is an accumulation of uric acid at the level of the joints causing crystals deposits. Common in people with genetic predisposition, high protein containing dietary products, diseases like high blood pressure, and other factors. Diagnosed using patient history and serum uric acid levels, managed using medication to either reduce uric acid production or to increase uric acid elimination from the body. Nowadays gout is much more diagnosed at late (chronic) stages since it involves an asymptomatic hyperuricemia stage making people not to pay much more attention when they feel pain at the level of the joints and expose these affected people to some complications. This research had as objective, to determine the prevalence and associated risk factors of gout amongst patients 20 years and above attending Clinique de L'Ouest de Bafoussam, in order to create awareness amongst these patients for its better management and prevention. The present study was a hospital based descriptive cross sectional study design where a well-structured questionnaire was used to present questions to consented conveniently sampled 100 patients on their socio demographics and their knowledge on the risk factors of gout. Uric acid alongside clinical presentation was also assessed to have the prevalence of gout among the patients. Data was analysed using SPSS version 26. Results indicate that the prevalence of gout amongst patients was 64%, where males were more affected than females. Risks factors statistically associated with gout were: family history of gout ($p=0.05$) with a prevalence of 45%, presence of comorbidities such as hypertension, obesity and diabetes ($p=0.01$) and those constantly taking eggs which is a food high in purines substances ($p=0.02$). Whereas constant knee joint pain was the clinical sign statistically associated with gout with a prevalence of 45% and a p value of 0.02. This study concludes that the prevalence of gout amongst patients

of La Clinique De L'Ouest of Bafoussam was high affecting males more than females, it is therefore recommended that constant screening tests and evaluation of risk factors should be done for early diagnosis and proper management of gout in order to reduce its prevalence and effects.

Keywords: Prevalence; Gout; Uric Acid; Associated Risk Factors; Bafoussam

Abbreviations

MSU: Monosodium Urate; HUA: Hyperuricemia; UA: Uric Acid

Background

For the past years, the prevalence of gout has shown increasing values from 6.8% in 2015 to 36% in 2021 and affecting up to 15.2% of men and 4.8% of women all over the world, gout still remains a life-threatening condition [1]. Gout the most common form of inflammatory arthritis, it is a crystal associated arthropathy caused by monosodium urate (MSU) deposition, which is directly related to hyperuricemia (HUA) caused by decreased serum uric acid (UA) excretion and is characterized by sudden, severe attacks of pain, swelling, redness and tenderness in one or more joints, most often in the big toe. Developed countries tend to have a higher burden of gout than developing countries, and seem to have increasing prevalence and incidence of the disease, this may be due to the fact that developed countries have more advanced dietary products rich in purine substances (meat products) which are found to increase gout incidence were as developing countries will rely more on farm foods rich in carbohydrates. Some ethnic groups are particularly susceptible to gout, supporting the importance of genetic predisposition. Socioeconomic and dietary factors, as well as comorbidities (high blood pressure, high BMI, kidney diseases) and medications that can influence uric acid levels and/or facilitate MSU crystal formation, are also important in determining the risk of developing clinically evident gout [2].

The World Health Organisation declared the prevalence of gout in Africa to be 5.7% in 1997, but in 2015 the prevalence of gout in Africa had increased to 15.2%. A systematic review in African countries [3] had the following results; South Africa had a prevalence of 25.9% and gout was common in Egypt at 12.9, a hospital-based study in Burkina Faso reveals a prevalence of 1.3%. In Nigeria and Liberia, men were found to be more affected than women.

Relatively few works have been done on gout in central African countries and Cameroon is part of these countries, not allowing the fact that it is also a developing country where people don't have enough financial facilities to be diagnosed

of gout at its early stage since its diagnosis requires much money. Nowadays gout is much more diagnosed at late (chronic) stages since it involves an asymptomatic hyperuricemia stage making people not to pay much more attention when they feel pain at the level of the joints and expose these affected people to some complications such as joint damage and even joint deformity which can alter the walking style of the affected individual and sometimes lead to emotional stress, this then geared us to determine the 'prevalence and associated risk factors of gout amongst patients 20 years and above attending Clinique de l'Ouest of Bafoussam' in order to contribute in the early diagnosis and management of gout but more important on how to prevent it.

Methodology

This study was carried out in the West Region (Bafoussam) which is one of the 10 regions of Cameroon. More specifically, it was carried out in Clinique de L'Ouest of Bafoussam. A hospital based cross sectional study design targeting all consented patients of 20 years and above attending Clinique de l'Ouest of Bafoussam was used from Novembre 2023 to June 2024, realising a total simple of 195 participants. This study was a quantitative study where data was collected using a well-structured questionnaire made of close ended questions to assess for risk factors and clinical measurements to diagnose gout was based on the serum uric acid test results measured biochemically using standard methods through the use of the Semi-Automatic Analytica 705 Biochemistry Analyzer. The dependent variable considered in this study was the prevalence of gout. The independent variables were divided into the sociodemographic factors such as age, sex, marital status, occupation, religion and location. Clinical factors considered in this study were history of joint pain and serum uric acid level, while the environmental factors considered were protein intake habit, family history of gout, any comorbidity. The data collected was entered into Microsoft Excel Office and exported to SPSS package version 26, 64-bit edition (IBM corp, the US) for analysis. Chi square analysis was used to assess for any association between the variables in the study. Categorical variables were described and presented in absolute frequency and percentages. Statistical significance was considered if the p-value was ≤ 0.05 . Ethical consideration was gotten from the Regional

Delegation of Public health of the West Region of Cameroon.

Results

Socio-Demographic Characteristics of Respondents

The Table 1 below shows the repartition of our respondents according to their sociodemographic characteristics. Majority of our participants were aged above 40 years old representing 42% of our total sample population, most were Christians (60%) and the percentage of married participants were 52%. On the other hand, both male and

female account for 50% each of the total sampled population meanwhile business was the most practiced occupation representing 51% and the university level was the most prevalent among our participants with a percentage of 36%. On the other hand, the least percentages were represented by respondents aged between 26-30 with a percentage of 10%, Muslims account for 17% of the total sample size and single individuals were represented 48%. The least occupation was represented by civil servants with 11% and the least educational level was the secondary level (31%).

Variable	Characteristic	Frequency (n)	Percentage (%)
Age range (yrs)	20 to 25	16	16
	26 to 30	10	10
	31 to 40	32	32
	Above 40	42	42
Total		100	100
Gender	Female	50	50
	Male	50	50
Total		100	100
Religion	Christian	60	60
	Muslims	17	17
	None	23	23
Total		100	100
Marital status	Married	52	52
	Single	48	48
Total		100	100
Occupation	Business	51	51
	Civil servant	11	11
	Student	38	38
Total		100	100
Level of education	Primary level	33	33
	Secondary level	31	31
	University level	36	36
Total		100	100

Table 1: Socio demographic characteristics of respondents.

Prevalence of Gout amongst Patients Aged 20 Years and above Attending Clinique De L'ouest of Bafoussam

Figure 1 below shows the prevalence of gout amongst patients aged 20 years and above attending Clinique de L'Ouest de Bafoussam where 64% were tested positive and 36% were tested negative.

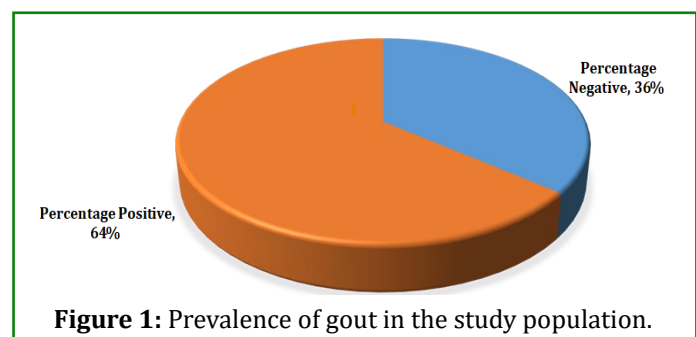


Figure 1: Prevalence of gout in the study population.

Association between Socio Demographics and Prevalence of Gout in the Study Population

Table 2 below shows the association between sociodemographic characteristics and the prevalence of gout. From our study, gout was more prevalent amongst respondents aged above 40 years (31%) and least amongst respondents aged between 26-30 years old (2%) with a p value of 0.113 meanwhile the positive rate of gout amongst males was higher than in female that is 36% and 28%

respectively with a p value 0.05. The prevalence of gout was higher in respondents with a primary level (25%) followed by secondary level with 22% and the least prevalence was amongst university level respondents that is 17% with a p value of 0.01. the association between the prevalence of gout and occupation showed a p value of 3.14 where the highest prevalence was amongst business practitioners that is 29%, followed by students with 27% and least by civil servants with 8%.

Variables	Prevalence of gout		X - square (p-value)
	Positive (n= 64)	Negative (n =36)	
Age (years)			
20 to 25	15 (15%)	1 (1%)	22.71 (0.113)
26 to 30	2(2%)	8(8%)	
31 to 40	16 (16%)	16 (16%)	
Above 40	31 (31%)	11 (11%)	
Gender			
Male	36 (36%)	14 (14%)	23.47 (0.04)*
Female	28 (28%)	22 (22%)	
Educational level			
Primary level	25 (25%)	8 (8%)	27.03 (0.01)*
Secondary level	22(22%)	9 (9%)	
University level	17 (17%)	19 (19%)	
Occupation			
Business	29 (29%)	22 (22%)	18.31 (3.14)
Civil servant	8 (8%)	3 (3%)	
Student	27 (27%)	11(11%)	

Table 2: Association between socio demographics and prevalence of gout in the study population.

Associated Risk Factors of Gout amongst Patients 20 Years and above Attending Clinique De L'ouest of Bafoussam

Environmental Risk Factors: Figure 2 below presents the environmental risk factors in this study. Out of a total

sample size of 100, 80% reported to have been drinking, 70% reported to have had a family history of the presence of another disease that may pre dispose them to gout such as hypertension or diabetes, 54% had family history of gout as shown.

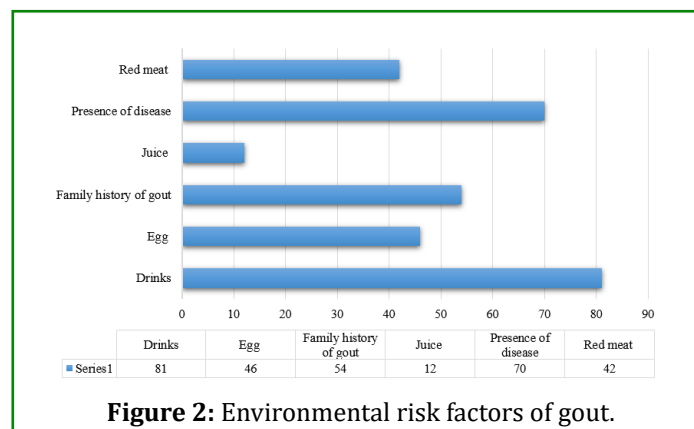


Figure 2: Environmental risk factors of gout.

Association between Environmental Factors and Prevalence of Gout in the Study Population

The Table 3 shows the association between the prevalence of gout and the environmental risk factors of gout. The prevalence of gout was highest amongst respondents with family history that is 34% with a p value of 0.05. The prevalence was also

highest (37%) amongst respondents with other diseases like hypertension, diabetes and others meanwhile those who were eating red meat constantly had the highest prevalence (32%) with a p value of 0.02. The prevalence of gout was also high amongst people who constantly drink that is 51% with a p value of 4.65.

Variables	Prevalence of gout		X - square (p-value)
	Positive (n= 64)	Negative (n =36)	
Family history of gout			21.15
Yes	34 (34%)	20 (20%)	(0.04)*
No	30 (30%)	16 (16%)	
Presence of disease			24.83
No	27 (27%)	3 (3%)	(0.01)*
Yes	37 (37%)	33 (33%)	
Constant food you eat			
Egg	28 (28%)	18 (18%)	23.8
Juice	4(4%)	8 (8%)	(0.02)*
Red meat	32(32%)	10 (10%)	
Have you been drinking alcohol			11.32
Yes	51 (51%)	30 (30%)	(4.65)
No	13 (13%)	6 (6%)	

Source: *-statistically significant at 0.05 significance level.

Table 3: Association between environmental risk factors and prevalence of gout in the study population.

Clinical Risk Factors: Figure 3 below shows the repartition of our participants according to the clinical risk factors. 70% reported to have been diagnosed with gout and up to 64%

reported to knee pain as the major clinical sign for gout. Others are presented as shown in Figure 3 below.

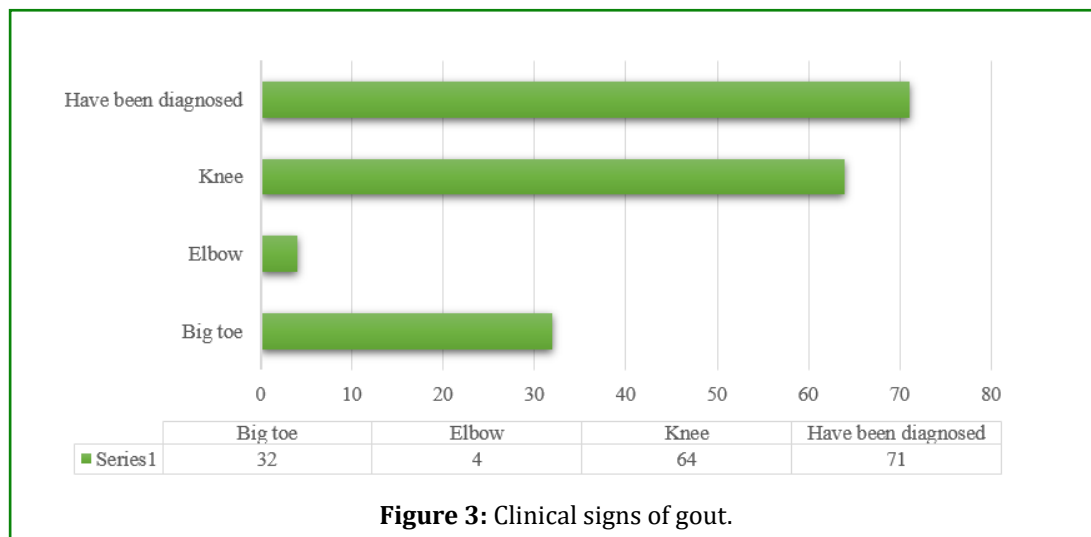


Figure 3: Clinical signs of gout.

Association between Clinical Risks and Prevalence of Gout in the Study Population

The Table 4 shows the association between clinical risk and prevalence of gout where the prevalence was high amongst

those having constant knee joint pains that is 45% with a p value of 0.02 whereas the prevalence was high amongst respondents who have not yet been diagnosed of gout before with a p value of 2.11.

Variables	Prevalence of gout		X - square (p-value)
	Positive (n= 64)	Negative (n =36)	
Clinical signs of gout			
Big toe	15 (15%)	17 (17%)	23.4 (0.02)*
Elbow	4 (4%)	0 (0%)	
Knee	45(45%)	19(19%)	
Have been diagnosed of gout?			
Yes	42 (42%)	29 (29%)	14.94 (2.11)
No	22 (22%)	7(7%)	

Source: *-statistically significant at 0.05 significance level.

Table 4: Association between clinical risk and prevalence of gout in the study population.

Discussion

Socio-Demographic Data

This hospital based cross-sectional study identified gout as a significant health problem among patients of la Clinique L'Ouest of Bafoussam. Majority of our participants were aged above 40 years old representing 42% of the sample size, however this age group also had the highest prevalence of gout from our study that is 31%. This goes in accordance with the study of Huijing et al in China [4], and contradicts that of Usenbo A, et al. [5] in Nigeria, whose prevalent age range was 25-35 years old and had a prevalence of 33.1%. This could be due to the fact that our study was a hospital based where as that of Usenbo A, et al. [5] was a community-based study where all age groups are encountered. According to our study, both male and female account for 50% each of the sample size and the prevalence of gout was higher in male (37%) than in female (27%), this study contradicts that of Gaffo A, et al. [6] in New Zealand who had more females (78.2%) than males (21.8%). This can be explained due to the fact that female pay more attention to their health and will tend to do constant screening than male. From our study, we had a higher prevalence amongst participants with a primary level of education and business practionners that is 25% and 29% respectively, which goes in accordance with the study of Tian L, et al. [7] in China.

Prevalence of Gout

Out of the 100 respondents in this study, the prevalence of gout was 64%, with the prevalence in male higher than that of female that is 37% and 27% respectively. This study goes in line with that of Nkeck JR, et al. [8] in Cameroon and contrasts that of Angelo Gaffo A, et al. [6] in New Zealand

whose prevalence was 14.6% highest in female than in male, this difference can be explained due to the difference in sampling area, technics, methods and size. This also goes in contradiction with the study of Fathallah SA, et al. [3] in South Africa who reported a prevalence of 21.2%. This might be due to the difference in geographic sampling area with different eating habits.

Associated Risk Factors of Gout

In this study, Factors that are statistically associated with gout include: family history of gout (p=0.05), presence of comorbidities such as hypertension, obesity and diabetes (p=0.01) and those constantly taking eggs which is a food high in purines substances (p=0.02). This study goes in line with that of Fathallah SA, et al. [3] in South Africa and contradicts that of Tian L, et al. [7] in China where the factors showing any statistical association with gout were constant alcohol drinking, red meat intake and alcohol consumption. This difference is due to the fact that we carried out our study in a developing country where people don't have enough revenue and rely on food from farms to eat, also majority of count on ceremonies to drink alcohol and eat meat whereas China is one of the most developed countries in the world. However, constant egg intake had a statistical association with gout (p=0.02) which goes in accordance with the study carried out by Anthony Usenbo A, et al. [5] in Nigeria, this similarity could be due to the fact that both are developing countries where poultry farming is common making eggs more accessible than meat and other purine substances. From our study, excess alcohol intake and smoking has shown no statistical association with gout (p>0.05) as associated risk factor of gout.

On the other hand, the main clinical sign of gout was pain in the knee joint with a p value of 0.02 and majority of our participants had constant knee joint pain (45%). This study goes in accordance with that of Nkeck JR, et al. [8] in Cameroon and contradicts that of Chen HG, et al. [9] in Taiwan's Aborigines where pain of the big toe had the highest prevalence of 59%, this could be explained by the dietary intake of our participants and the fact that our study was carried out in a developing country as compare to that carried out in Taiwan in Asia, a developed country.

Conclusion

This study aimed to assess the prevalence and predisposing factors of gout among patients aged 20 years and above of La Clinique de l'Ouest of Bafoussam. From our study, gout had a prevalence of 64% among patients of La Clinique de l'Ouest of Bafoussam especially among male (37%).

Gout has significant associations with multiple risk factors such as family history of gout (p=0.05), constant egg intake

($p=0.02$), presence of certain diseases such as hypertension, diabetes and obesity ($p=0.01$), with the most common clinical signs of gout seen to be knee joint pain ($p=0.02$) and a prevalence of 45%.

Acknowledgments

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Conflict of Interests

The authors declare that they have no competing interests.

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