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RISK FACTORS OF GOUT AMONG PATIENTS ATTENDING MOSUL HOSPITALS

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ABSTRACT

Background: Gout is one of the common inflammatory arthritis, that occurs due to deposition of mono sodium urate crystals in the joint or soft tissue. The prevalence of gout is increasing in the last years globally, although it is a preventable and a controllable disease if well managed. There are many risk factors that cause it could be modified like; life style and physical activity, diets, comorbidities and certain drugs intake while age and gender with genetic factor and family history are non-modifiable one. Objective: To study risk factors of gout in Mosul city. Methodology: A case-control study design was carried out in the main hospitals of Mosul city, Iraq. A total of (50) cases and (100) controls were collected. The period of collection of both cases and controls was from January 2021 to June 2021. Results: Gout is mainly a male disorder with p value (0.011) and there is marked increase in the number of female affected with advancing age, consumption of purine rich foods of animal origin are significant risk factor in Mosul population with p value (0.000) and alcohol intake p value (0.016), while consumption of diet rich in vegetables, fruits, and low fat dairy products are protective with p value (0.000) for each. Lack of physical activity and diabetes and cardiovascular diseases are also strong risk factors with p value (0.014)(0.019)(0.021) respectively, in addition to diuretics use p value (0.027), there is also a significant result for positive family history p value (0.001) and most of them from father side. Apart from risk factors some observation regarding the cases documented during the study in which; the first metatarsal joint is the most common site affected, and the first gout attack mostly diagnosed during Spring mainly at April &May, while recurrent flare aggravated in Winter season and many patients documented fruits and vegetables with drinking plenty of water relieve their symptoms. Conclusion: Being male and having a positive family history increase risk for getting gout, in addition to certain chronic illnesses like diabetes and cardiovascular diseases, with diuretics use and alcohol intake with lack of physical activity all of them are marked risk factors of gout in Mosul city.

INTRODUCTION

Gout; disease of kings, and the king of diseases. It is a well-known disease for over 2000 years, and it is the most common cause of joint inflammation in adults males.[1]

Types of gout: Primary gout: it is not associated with an identifiable cause other than family history, it is either related to under excretion or overproduction of uric acid.[2]

Secondary gout: is related to medications or conditions that cause hyperuricemia, such as myeloproliferative diseases and their treatment, hyperproliferative skin disorders like psoriasis, and chronic kidney disease.[3]

Risk factors: Demographic factors (Gender: Men get gout more than women, and at younger ages. Age: Increasing age is a risk factor for gout).[4]

Dietary Factors: higher consumption of purines rich food from animal origin like; meat and meat gravies, kidney, liver, seafood increase risk of gout.[5,6]

Chronic illness: Hypertension, Diabetes mellitus, Osteoarthritis, Medications, Obesity.[7]

Laboratory diagnosis: Synovial fluid analysis is a gold standard diagnosis is made by identifying uric acid crystals in joint fluid or in a mass of uric acid (tophus) under polarizing microscope, and identification of needle-shaped monosodium urate crystals with negative

birefringence.[8,9,10,11,12]

Aim of the study: Identifying the risk factors for gout is an important step in the prevention and management of such an increasing disease globally.

PATIENTS AND METHODS

Sample was taken from the patients themselves or their relatives who attended Rheumatologic consultation unit of Mosul hospitals. A hospital-based case-control study design. The data collected during six months period from January 2021 to June 2021.

The samples size in this study are (50) patients (cases) with gout and (100) control without gout. They are randomly collected during the study period.

Result: Thorough personal, medical, social history were obtained from the (50) cases and (100) controls enrolled the study during the time of the study and were summarized in the following tablesAccording to gender: Table (3.1) demonstrates the distribution of study sample according to gender and depicts that, being a male is risky for the development of disease with (OR= 2.528) and the association shows highly statistical significance at (p=0.011)

Table (3.1): Distribution of study sample according to gender.

Gender	Casesn=50 No. (%)	Controlsn=100 No. (%)	OR	p- value*	95% CI
Males	35 (70.0%)	48 (48.0%)	2.528	0.011	1.229-5.198
Females	15 (30.0%)	52 (52.0%)			
*χ^2 test					

Table (3.2): Distribution of study sample according to age intervals.

Age /yearsintervals	Casesn=50 No. (%)	Controlsn=100 No. (%)	OR	p-value	95% CI
30-39	10 (20.0%)	12 (12.0%)	1.833	0.192*	0.732-4.594
40-49	15 (30.0%)	40 (40.0%)	0.643	0.231*	0.311-1.328
50-59	10 (20.0%)	28 (28.0%)	0.641	0.288*	0.283-1.458
60-69	12 (24.0%)	12 (12.0%)	2.315	0.059*	0.955-5.617
≥70	3 (6.0%)	8 (8.0%)	0.734	0.752**	0.186-2.896
*χ^2 test **Fissure exact test					

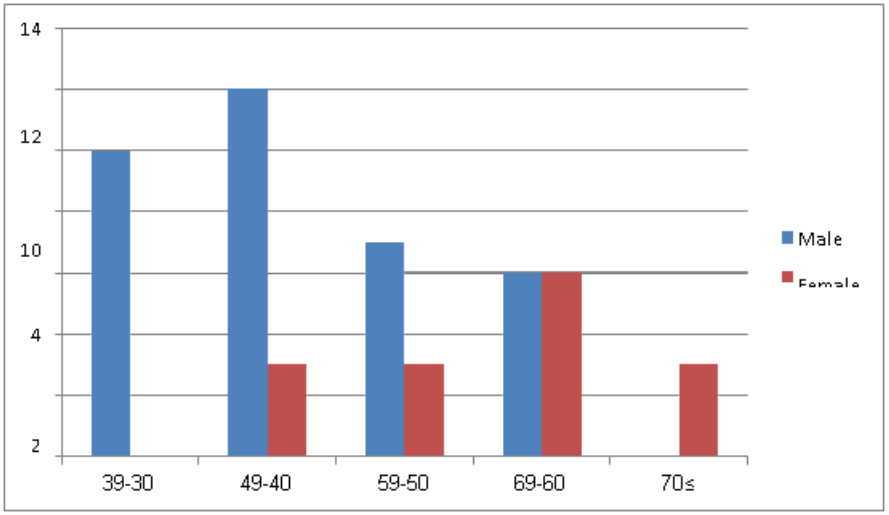

Figure (3.1): Demonstrates the number of gouty female and male according to age intervals.

Table (3.3): Distribution of study sample according to marital status.

Marital status	Cases n=50 No. (%)	Controlsn=100 No. (%)	OR	p-value*	95% CI
Single	2 (4.0%)	8 (8.0%)	0.479	0.497	0.098-2.346
Married	48 (96.0%)	92 (92.0%)			
*Fissure exact test					

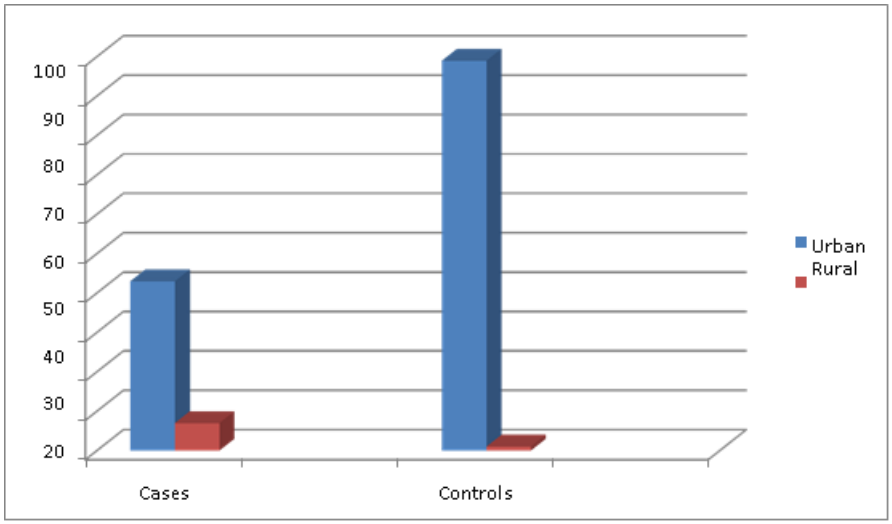

Figure (3.2): Distribution of study sample according to residence.

Table (3.4): Distribution of study sample according to occupation.

Occupations	Casesn=50 No. (%)	Controlsn=100 No. (%)	OR	p-value	95% CI
Retired	9 (18.0%)	9 (9.0%)	2.2195	0.110*	0.821-6.002
Worker	11 (22.0%)	17 (17.0%)	1.3771	0.459*	0.590-3.217
Employee	18 (36.0%)	49 (49.0%)	0.5855	0.131*	0.291-1.177
Housewife	9 (18.0%)	24 (24.0%)	0.6951	0.403*	0.296-1.635
Disabled	3 (6.0%)	1 (1.0%)	6.3191	0.108**	0.640-62.379
*χ^2 test **Fissure exact test					

Table (3.5): Distribution of study sample according to BMI.

BMI	Casesn=50 No. (%)	Controlsn=100 No. (%)	OR	p- value*	95% CI
Normal	7(14.0%)	17(17.0%)	0.795	0.637	0.306-2.064
Over weight	19(38.0%)	41(41.0%)	0.882	0.724	0.440-1.770
Obese	24(48.0%)	42(42.0%)	1.275	0.485	0.644-2.522
*χ^2 test					

Table (3.6): Distribution of study sample according to dietary habits.

Dietary habit	Cases n=50 No. (%)	Controlsn=100 No. (%)	OR	p- value*	95% CI
Fast food	14(28.0%)	38(38.0%)	0.635	0.225	0.303-1.327
Red meat	39(78.0%)	33(33.0%)	7.198	0.000	3.272-15.834
Soft drink, juice	19(38.0%)	25(25.0%)	1.839	0.099	0.887-3.810
Sugar	15(30.0%)	20(20.0%)	1.714	0.172	0.787-3.734
Dairy products	21(42.0%)	75(75.0%)	0.241	0.000	0.117-0.497
Legumes	33(66.0%)	63(63.0%)	1.140	0.718	0.559-2.324
Fruit & vegetables	16(32.0%)	85(85.0%)	0.083	0.000	0.037-0.187
*χ^2 test					

Table (3.7): Distribution of study sample according to habitual parameters.

Habitual parameters		Cases n=50 No. (%)	Controls n=100 No. (%)	OR	p-value	95% CI
Smoking	Yes	11(22.0%)	17(17.0%)	1.377	0.459*	0.590-3.217
	No	39(78.0%)	83(83.0%)			
Alcohol	Yes	5(10.0%)	1(1.0%)	11.000	0.016**	1.249-96.897
	No	45(90.0%)	99(99.0%)			
Lack ofphysical activity	Yes	23(46.0%)	26(26.0%)	2.425	0.014*	1.188-4.948
	No	27(54.0%)	74(74.0%)			

*χ^2 test **Fissure exact test

Table (3.8): Distribution of study sample according to medical andfamily history.

Medical history			Casesn=50 No. (%)	Controlsn=100 No. (%)	OR	p-value	95% CI
Family history		Yes	26 (52.0%)	23 (23.0%)	3.627	0.001*	1.758-7.484
		No	24 (48.0%)	76 (76.0%)			
Chronicdiseases	No		17 (34.0%)	46 (46.0%)	0.605	0.160*	0.299-1.224
	Yes	DM	15 (30.0%)	14 (14.0%)	2.633	0.019*	1.151-6.023
		HT	26 (52.0%)	38 (38.0%)	1.768	0.102*	0.889-3.511
		Cardiovas cular diseases	8 (16.0%)	4 (4.0%)	4.571	0.021**	1.305-16.018
		OA	6 (12.0%)	7 (7.0%)	1.812	0.360**	0.575-5.710
		Renal diseases	5 (10.0%)	3 (3.0%)	3.593	0.118**	0.822-15.693
		Tumor	1 (2.0%)	1 (1.0%)	2.020	1.000**	0.124-32.989
		Thyroid problems	1 (2.0%)	2 (2.0%)	1.000	1.000**	0.089-11.300

χ^2 test **Fissure exact test

Table (3.9): Distribution of study sample according to drugs history.

Drugs history		Casesn=50 No. (%)	Controlsn=100 No. (%)	OR	p-value	95% CI
	No	26 (52.0%)	65(65.0%)	0.583	0.124*	0.871-4.186
Yes	Anti-HT drugs	13 (26.0%)	20 (20.0%)	1.405	0.403*	0.310-1.876
	Diuretics	11 (22.0%)	9 (9.0%)	2.852	0.027**	0.167-2.498
	Anti-DM	*1(2.0%)	4(4.0%)	0.490	0.665**	0.053-4.501
	Anti-metabolites	*1(2.0%)	2 (2.0%)	1.000	1.000**	0.089-11.300

***χ^2 test **Fissure exact test**

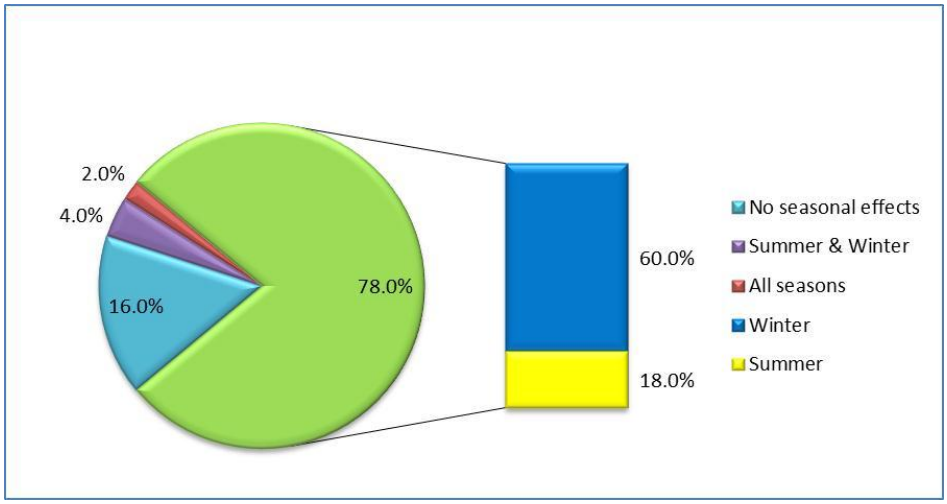

Figure (3.3): The seasonal variations of the disease.

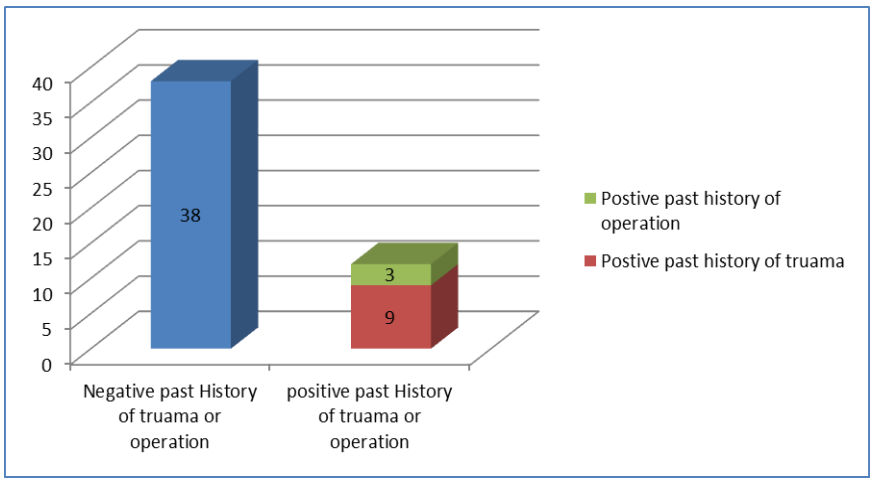

Figure (3.4): The presence or the absence of past history of trauma or.

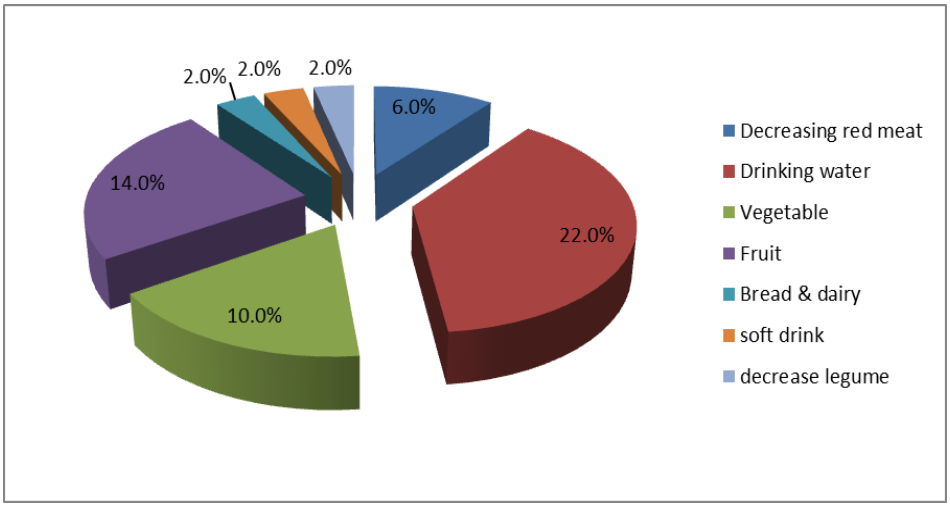

Figure (3.5): The proportions of the reducing factors.

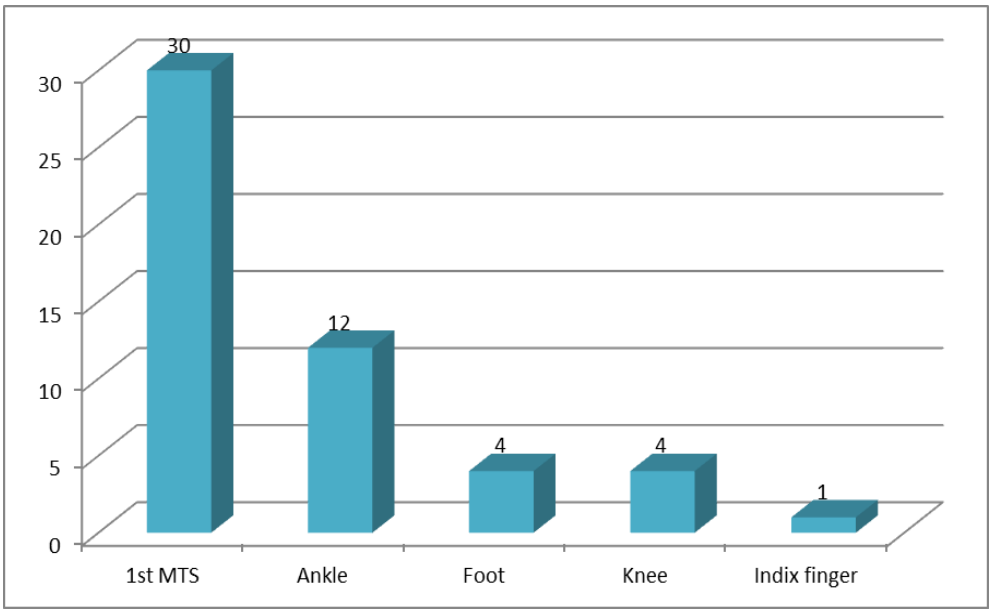

Figure (3.6): Sites of the disease.

CONCLUSIONS

The following conclusions were obtained from the present study

- Prevalence of Gout is 5% in Mosul city.
- The affecting age group range from (30s_70s) with male predominantly affected and there's female catch-up after menopause.
- Genetic factor is important risk factor for gout, and most of them from father side.
- Life style play an important role in gout disease; were lack of physical activity and alcohol intake are obvious significant risk factors, eating unhealthy diet and diet rich in red meat increase risk of gout, while healthy diet with plenty of vegetables and fruits with low fat dairy products are significant protective factors or even a relieving factors in addition to drinking a plenty of water.
- Diabetes mellitus and cardiovascular diseases and diuretics intake are significant risk factors for gout.

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