

NEW APPROACHES TO THERAPEUTIC NUTRITION AND PREVENTION OF RISK FACTORS FOR GOUT

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Abstract

Gout is characterized by hyperuricemia and inflammation at sites of monosodium urate crystal deposition. The goals of therapy are to maintain serum uric acid within the target range, prevent acute attacks and complications, and improve patients' quality of life. These goals can be achieved by eliminating risk factors, adhering to therapeutic dietary recommendations, and using urate-lowering medications. This article presents the results of an analysis of the management of patients with gout in inpatient and outpatient settings.

Keywords: Gout, dietary therapy, patient management.

Introduction

Gout is a systemic inflammatory disease characterized by the deposition of monosodium urate crystals in tissues [5,10]. The main risk factor for the development of gout is hyperuricemia, with serum uric acid levels above 360 $\mu\text{mol/L}$ [3]. An acute attack of arthritis is the main clinical manifestation of gout and is caused by monosodium urate (MSU) crystals [5,8]. The goal of gout treatment is to achieve a normal serum uric acid level ($<360 \mu\text{mol/L}$), thereby preventing recurrent arthritis attacks. Obesity, lipid metabolism disorders, cardiovascular diseases, impaired renal function, nephrolithiasis, and hepatic steatosis are frequently observed in patients with gout. The greater the number of comorbidities, the more severe the course of gout and the more difficult pharmacological treatment may be [11,12].

Researchers place particular emphasis on non-pharmacological management of gout. Gout requires appropriate dietary management. Patients are advised to follow a diet that minimizes the burden on the musculoskeletal system [1]. Adherence to a low-purine diet and continuous weight control contribute to lowering serum uric acid levels [1,2,7].

However, no specific diet for gout has been developed to date. Among the dietary patterns studied, patients with gout are recommended to follow the DASH (Dietary Approaches to Stop Hypertension) diet, which was developed to maintain normal blood pressure, as well as the Mediterranean diet. These dietary patterns include fruits, vegetables, and dairy products with reduced amounts of total and saturated fats [4,11]. Therapeutic nutrition is an essential component of comprehensive gout management. Dietary recommendations should be individualized according to the patient's metabolic abnormalities and should take into account foods characteristic of the local national cuisine [6]. In metabolic diseases such as gout, dietary management may be an important component of treatment alongside other therapeutic approaches.

Aim of the study

To improve dietary management in patients with gout, taking into account their management in inpatient and outpatient settings.

Materials and Methods

To achieve this aim, we performed a retrospective analysis of 125 medical records of patients with gout who were treated in the rheumatology department of the multidisciplinary clinic of Tashkent State Medical University during 2020–2023. The patients were aged 30–75 years.

The analysis showed that most patients were young, working-age adults aged 30–55 years. Patients were divided into two groups according to the clinical structure of the disease; all patients presented to the clinic during an exacerbation of the disease (Table 1).

Table 1. Distribution of patients according to disease structure

Established diagnosis (n=125)			
Group 1: Intermittent gout		Group 2: Chronic gout	
n	%	n	%
72	57.6	53	42.4

All patients underwent a comprehensive examination, including clinical, biochemical, instrumental, and statistical methods.

Medical history data and the results of objective examinations were analyzed. Particular attention was paid to family history, risk factors, harmful habits, comorbidities, lifestyle, and dietary habits. The results of physical examination, laboratory tests of blood and urine, serum urea, creatinine, uric acid, calcium, vitamin D, lipid profile, radiographic examination of the musculoskeletal system, and electrocardiography (ECG) were analyzed.

Statistical analysis was performed using Microsoft Office Excel 2020 and SPSS 22. Data were expressed as $M \pm m$, where M is the mean value and m is the standard error of the mean. Differences between independent samples were assessed using the Mann–Whitney test and Student’s t-test.

Results and Discussion

Among the 125 patients, 72 were diagnosed with intermittent gout and gouty arthritis, while 53 had chronic gouty arthritis. Renal involvement (urate nephrolithiasis and chronic kidney disease) was identified in one in every five patients. All patients experienced sudden, rapidly increasing pain in a single joint, most commonly the first metatarsophalangeal joint of the foot, accompanied by local inflammatory signs including skin hyperemia, edema, and impaired function of the affected joint. Patients also frequently complained of weakness, muscle pain, and rapid fatigue. It was found that patients frequently suffered from respiratory infections. Exacerbations of the disease were more commonly observed during the autumn and winter seasons. Gout was more frequently observed among people engaged in intellectual occupations (teachers, engineers, managers) and among young working-age adults.

Frequent risk factors for gout exacerbation included smoking more than one pack of cigarettes per day (36 patients), low physical activity (87 patients), and low fluid intake (78 patients). Dietary violations—including consumption of meat more than once a week, particularly fatty and fried meat, frequent use of spicy seasonings, and alcohol consumption more than once a week (most often beer)—were identified in the majority of patients. Assessment of adherence to dietary recommendations provided by treating physicians showed that most patients violated the recommended diet by consuming spicy and meat products and alcoholic beverages periodically or regularly.

Table 2. Distribution of patients according to body mass index (BMI)

Age / BMI	18.5–24.9		25–29.9		30–34.9		35–39.9	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II

30–39 years	2	2	3	0	3	1	0	0
40–49 years	1	0	8	3	3	4	2	1
50–59 years	0	0	11	10	3	4	1	1
60 years and older	6	3	10	6	6	1	1	0
Total	9	5	32	19	15	10	4	2

It should be noted that among the 125 patients with gout during an exacerbation, BMI was measured in only 96 patients. Normal body weight was found in only 14 patients. Increased BMI was identified in the majority of patients; however, appropriate recommendations for weight reduction had not been provided. It is also important to note that in all patients, the acute gouty arthritis attack was triggered by alcohol consumption, dietary violations, a common cold, or the use of diuretics.

Based on these findings, we developed a special questionnaire for the hygienic assessment of the actual dietary intake of patients with gout and for developing measures to optimize the organization of therapeutic diets. A survey was conducted among 60 patients with gout who consented to participate in the study. The survey showed that patients preferred national cuisine dishes and the use of locally available products, fruits, and vegetables. Hygienic assessment of the standard Diet No. 6 showed that 28.5% of patients rejected Diet No. 6 because of its low energy value; national dishes were rarely included, the amount of fish and chicken was below the patients' needs, meat was not served, and dairy products were absent from the diet. An abundance of bakery products was also identified. Taking these findings into account, we developed a therapeutic diet incorporating national cuisine dishes (mastava, ugra osh, chicken pilaf, fish dimlama, and others). Its use in patients with gout was associated with improvement in the clinical course of the disease and an improvement in patients' quality of life.

Conclusion

Thus, although gout is a chronic, inflammatory, progressive disease, timely comprehensive treatment can achieve disease remission and improve patients' quality of life. The results of our study demonstrated the importance of identifying and eliminating risk factors for gout, including smoking, alcohol consumption, dietary violations, and increased BMI. Taking into account patients' region of residence and characteristics of the local cuisine, we developed a therapeutic diet incorporating national dishes for patients with gout. Combined with urate-lowering medications aimed at achieving normal serum uric acid levels, this approach improved the clinical course of the disease and may serve as a basis for effective disease control.

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