GOUT AND THE CENTRAL ASIAN DIET

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Abstract

Patients with gout are advised to follow a certain diet. The search for healthy eating habits continues. This overview aims to explore the impact of the Central Asian diet on the development and course of hyperuricemia and gout and to propose related preventive measures. We processed English articles reflecting on the impact of the Central Asian diet on the development of gout and the frequency of gout attacks. Central Asian dishes such as lagman, pilaf, and manty are distinguished for high nutritional value and abundance of saturated fats, red meat, and trans fats. Moderate consumption of Central Asian traditional dishes is advisable to prevent weight gain and gout attacks. Patients with gout are additionally encouraged to consume low-calorie and non-fat products and regularly intake fruits and vegetables during meals. Patients with gout should be provided with information about a healthy diet and lifestyle. More evidence-based studies are warranted to provide better quality guidance on gout prevention and treatment.

Keywords: Diet, Hyperuricemia, Gout, Lifestyle, Central Asia, Practice guideline

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INTRODUCTION

Gout is a chronic systemic tophaceous disease that affects subjects prone to hyperuricemia. Insufficient excretion of uric acid and its retention results in hyperuricemia [1]. The normal daily supply of uric acid is about 1000 mg while its renewal is about 650 mg. The excess of sodium monourate crystals is deposited in various tissues, leading to inflammation and tophi formation. Both genetic and environmental factors confound the process [2].

Two-thirds of the total uric acid pool (500 mg/day) is formed from endogenous nucleosides while one-third

(200 mg/day) is synthesized from purines consumed with food [3]. Nearly 650 mg of uric acid is excreted daily and the same amount is replenished. About 75% of urates are excreted through the kidneys, with a clearance of 9 ml/min, while the remaining urates are excreted in the feces. A decrease in uric acid excretion and/or an increase in its production results in the accumulation of uric acid in the body, causing hyperuricemia and gout. Clinical practice suggests that primary gout is mostly due to genetic polymorphisms combined with kidney urates in patients who do not follow a diet [1-4].

Dietary recommendations for patients with gout are

widely known. However, the search for effective specific dietary schemes continues because of the principles of evidence-based medicine. Accordingly, recommendations for the management of patients with gout have also been developed, with variable quality of supportive evidence [5-9].

This study aims to analyze the impact of the Central Asian diet on the development of hyperuricemia and gout and suggest related preventive measures.

SEARCH STRATEGY

In May 2021, we performed comprehensive searches through Scopus, Web of Science, MEDLINE/PubMed, Directory of Open Access Journals (DOAJ), and Open Ukrainian Citation Index (OUCI) using the following keywords: diet, hyperuricemia, gout, arthritis, exacerbations, obesity, weight loss, lifestyle, Central Asia, management, and recommendations. The retrieved articles were checked for their relevance. The list of processed documents included only those strictly related to the topic of the review.

IMPACT OF LIFESTYLE ON THE DEVELOPMENT AND COURSE OF GOUT

Gout usually manifests in men aged 30–45 years and women above 50 years. The disease is especially common in elderly subjects (>65 years). Some lifestyle factors and clinical conditions increase the risks of hyperuricemia and gout in humans. The list of risk factors includes obesity; arterial hypertension; chronic kidney disease; overeating or prolonged starvation; regular excessive consumption of alcoholic beverages, especially beer, whiskey, gin, vodka, and rum; consumption of large amounts of meat or seafood; consumption of drinks with high fructose content such as non-dietary carbonated beverages; and some medicines, especially diuretics that reduce the excretion of urates through the kidneys [10].

Additionally, certain factors increase the risk of exacerbation in subjects with gout: trauma or recent surgery; overeating; starvation; fluid loss; consumption of excessive amounts of alcoholic beverages such as wine; and drug therapies that cause sudden changes in the blood uric acid levels [11-15].

Obesity is a gout risk factor, and weight loss is an important goal for patients with gout and concomitant obesity. Nonetheless, it is not advisable to embark on extreme diets for weight loss. Any dietary restrictions for a long time are stressful.

Gout patients may terminate their diet by resuming overeating, thereby increasing the risk of gout attacks. Overeating may lead to a weight gain exceeding the level before diet (the "yo-yo" effect). The increased body mass index may further increase the risk of hyperuricemia and gout attacks. Accordingly, a long-term strategy is advisable to maintain certain dietary restrictions to achieve lasting remission [14, 15].

Dietary recommendations for patients with gout have been revised over the past year. Nonetheless, there are still uncertainties over the combination of food products suitable for gout patients. Until globally endorsed dietary guidelines are developed, gout patients should be advised to maintain their body weight through a balanced diet by limiting alcoholic and sweetened beverages and food products and drink large amounts of water to avoid fluid loss [16-18].

It is also important to discuss a personalized diet with all gout patients, paying particular attention to the amount and composition of the diet, but not to the weight loss. The DASH diet (Dietary Approaches to Stopping Hypertension) can be considered a healthy diet choice: protein - 10-20% of the calorie content of the diet; fats - up to 30%; saturated fat - up to 10%; carbohydrates - 45-60%; fiber - 30g; sodium - up to 2300mg [19]. The DASH food products are divided into the groups presented in Table 1 [19].

Weight loss is one of the options to reduce the risk of gout attacks in obesity. Patients with normal weight should be advised to avoid weight gain. Avoiding dietary factors provoking gout attacks such as alcohol abuse, food with a high content of purine/protein and fat, sugar soda, and variable drug dependence may help prevent arthralgia and arthritis in gout [20-22].

Food products should be considered given their ability to induce hyperuricemia. In contrast to poultry, meat, fish, beef, pork, and mutton increase the risk of gout attacks. Daily dietary schemes containing meat increase the risk of gout by 21% while weekly dietary schemes containing fish increase the risk of gout by only 7%. Spinach, asparagus, mushrooms, and legumes are rich in purines but their consumption is not associated with an increased risk of gout attacks [16, 17].

Alcohol consumption increases the risk of gout by 2.5 times. The risk of gout is greater in men who drink >50-gram alcohol daily than those who do not drink. Consumption of more than 500 ml of beer per day results in a greater risk of gout than two or more glasses of liqueur per day. Moderate wine consumption (2 glasses

a day) does not seem to increase the risk of gout exacerbation. However, the association between alcohol consumption and gout is stronger in women than in men [11,16,17].

Table 1. Food products included in the daily diet according to the DASH diet

Food product	Servings per day		
Calorie content	1600 kcal	2600 kcal	3100 kcal
Cereals: ready-made cereal - 70g, bread - 35g	6	10-11	12-13
Vegetables: fresh or cooked vegetables - 100g	3-4	5-6	6
Fruit: 100g of fruits or berries, dried fruit - 25g	4	5-6	6
Dairy products (low-fat): 200 ml of milk, kefir, yogurt, cheese - 50g	2-3	3	3-4
Lean meat, poultry, fish, seafood: 30g of meat, poultry, fish, 1 egg	3-6	6	6-9
Legumes, nuts, and seeds: legumes - 70g, nuts - 30g	3 times a week		
Oils: oils - 1 tsp, sour cream - 1 tbsp	2	3	4
Sweets and Added Sugar: sugar - 1 tbsp	Less than 2		

The principles of nutrition for gout patients based on the latest recommendations are summarized and presented herein [23-28]:

- Reducing weight if it is excessive. Normalization of body weight should be done slowly (0.5-1kg per week), as severe starvation increases the number of ketone bodies, which causes hyperuricemia.
- Restricting alcoholic beverages. Avoid beer and other alcoholic beverages. One or two glasses of wine in men and a glass of wine in women do not increase the risk of hyperuricemia and gout.
- Avoiding sweet non-alcoholic drinks
- Reducing red meat consumption
- Consumption of fish in adequate quantities. Fish consumption has obvious cardiovascular benefits. Moderate consumption of fish rich in omega-3 can be recommended two-three times a week.
- Increasing consumption of low-fat dairy products
- Increasing consumption of plant proteins, vegetables, legumes, and fruits
- Patients suffering from gout and urolithiasis should drink more than 2 liters of water per day.

- Avoiding smoking, excessive salt intake, and other cardiovascular risk factors
- Regular physical activity

A healthy diet alone reduces serum uric acid levels by 15%. Changes in diet along with weight loss result in additive effects for reducing the risk of arthralgia and arthritis. Safe weight loss is about 0.5-1 kg per week [14, 15].

CENTRAL ASIAN DIET AND ITS IMPACT ON GOUT

In dietology, there is no notion of the Central Asian diet. However, it is important to distinguish the main features of nutrition in Central Asia [29]. Most of the national meals and food products such as lagman, pilaf, manty, beshbarmak, lentil soup, scones, samsa, fresh salads, fruits, tea, and sweets are rich in saturated and trans fats and red meat with high nutritional values. Overeating may be also a feature of Central Asian dietary habits[30].

Horseflesh is one of the common types of meat in Central Asian cuisine that belongs to the "red meat" category. Healthy subjects are advised to limit weekly red meat in their diet to 500 g, with a portion below 75 g. Horseflesh protein content is close to beef, chicken, and turkey. On average, 100 grams of horse meat contain 7 grams of fat, which is lower than it is in beef, chicken shank, or lamb [31,32].

The best meals with red meat are those of horseflesh and veal with low saturated fats. At the same time, horseflesh sausages are not recommended for gout patients because of the high content of salt and other sources of sodium. Gout patients should eat less red meat and replace it with protein from dairy products and plant sources[31,32].

Beshbarmak is a national holiday dish made of flour, cooked in the broth with red meat. Gout patients are advised to consider alternatives to this dish to reduce red meat consumption [33].

Pilaf consists of rice, meat, vegetables, and spices. The dish is prepared using red meat and a lot of fat. But excessive consumption of fats is associated with weight gain and cardiovascular risk. Patients with gout are recommended to consider pilaf made of dried fruits as a substitute for the meat [33].

Samsa is a traditional dish of small triangular puff pies with meat. To reduce the samsa fat content, patients with gout are advised not to use puff dough when preparing samsa and to replace red meat with chicken or turkey.

Exacerbation of the disease in patients with gout is more associated with the use of red meat than white. One or two samsa pies are recommended to eat together with a lot of vegetables [32].

In order not to allow weight gain and to reduce the frequency of gout attacks it is recommended to consume Central Asian traditional dishes moderately or rarely. Patients with gout should supplement their diet with low-calorie and non-fat foods, and there must always be fruits and vegetables on the table during meals. Vegetables, fruits, whole grains, legumes, and dairy products are recommended as the basis of the diet. Eating fish is preferable to meat as fish has an advantage in preventing cardiovascular diseases. The meat is rich in purines, and its amount should be reduced to a level acceptable to a particular patient [16,17].

CONCLUSION

Gout has long been perceived as “a disease of abundance”. Gout patients should be provided with recommendations about their lifestyles to maximize the effect of diet therapy. The quality of available evidence

for gout treatment is not high; so there is a need for more research studies to better manage gout. Nutritional recommendations for gout patients should be based on high-quality information processed by experts.

AUTHOR CONTRIBUTIONS

All the authors took part in the drafting and revising of the manuscript. The final version of the manuscript is approved by all co-authors.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

DISCLAIMER

The authors claim that no part of this manuscript is copied or published elsewhere.

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ҚҰЯҢ ЖӘНЕ ОРТАЛЫҚ АЗИЯЛЫҚ ДИЕТА

Түйіндеме

Құяң ауруына шалдыққан науқастарға белгілі бір диетаны ұстануға кеңес беріледі. Қазіргі таңда құяң ауруына шалдыққан науқастар үшін оңтайлы тамақтану іздену жалғасуда. Бұл шолудың мақсаты Орталық Азия диетасының гиперурикемия мен құяңның дамуы мен ағымына әсерін зерттеу және тиісті алдын алу шараларын ұсыну болып табылады. Біз ортаазиялық диетаның құяңның дамуына әсерін және құяңның ұстама жиілігін зерттеген ағылшын тіліндегі мақалаларды талдадық. Лағман, палау және манты сияқты ортаазиялық тағамдар жоғары тағамдық құндылығымен және қаныққан май, қызыл ет және трансмайлардың көп мөлшерімен ерекшеленеді. Салмақ қосуды және құяң ұстамасын болдырмау үшін дәстүрлі ортаазиялық тағамдарды қалыпты тұтыну ұсынылады. Құяң ауруына шалдыққан науқастарға қосымша төмен калориялы және майсыз тағамдарды тұтыну, жемістер мен көкөністерді үнемі тұтыну ұсынылады. Құяң ауруына шалдыққан науқастарға дұрыс тамақтану және өмір салтын таңдау туралы ақпарат беру керек. Құяң ауруының алдын-алу және емдеу бойынша сапасы жоғары нұсқаулық беру үшін қосымша зерттеулер жүргізу қажет.

Түйінді сөздер: диета, гиперурикемия, құяң, өмір салт, Орта Азия, практикалық нұсқаулық

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ПОДАГРА И ЦЕНТРАЛЬНОАЗИАТСКАЯ ДИЕТА

Резюме

Больным подагрой рекомендуется соблюдать определенную диету. На данный момент продолжаются поиски оптимального питания для больных подагрой. Цель данного обзора - изучить влияние среднеазиатской диеты на развитие и течение гиперурикемии и подагры, а также предложить соответствующие профилактические меры. Мы проанализировали статьи на английском языке, посвященные изучению влияния среднеазиатской диеты на развитие подагры и частоту приступов подагры. Такие среднеазиатские блюда, как лагман, плов и манты, отличаются высокой пищевой ценностью и обилием насыщенных жиров, красного мяса и трансжиров. Умеренное употребление традиционных среднеазиатских блюд рекомендуется для предотвращения набора веса и приступов подагры. Больным подагрой дополнительно рекомендуется употреблять низкокалорийные и обезжиренные продукты, регулярно употреблять фрукты и овощи. Пациентам с подагрой необходимо предоставлять информацию о здоровом питании и образе жизни. Чтобы предоставить более качественные рекомендации по профилактике и лечению подагры необходимо проведение дополнительных исследований.

Ключевые слова: диета, гиперурикемия, подагра, образ жизни, Центральная Азия, практическое руководство

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