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Is having O blood type a risk factor for Fibromyalgia syndrome? The importance of nutrition in Fibromyalgia syndrome

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Abstract

Aim: Fibromyalgia syndrome (FS) is characterized with diffuse pain and sensitivity at specific anatomical points and occurs together with mood, sleep and cognitive disorders. Life quality of the patients was destroyed and this situation creates an important economical issue in the medical care system.

According to different antigens placed on the surface of red blood cells, there are four different blood type groups such as A, B, O and AB. To give nutritional recommendations for different blood types became one of the most popular topics in last decades. In this study, we investigated the link between FS and ABO blood types.

Methods: In this study, we included 200 female patients with FS diagnosis (according to American College of Rheumatology, 2010 criteria) who visited our Physical Medicine and Rehabilitation Clinic between July 2015 and December 2015. The patients' age, blood group, Rh antigen system were saved. Control group was also formed from 185 volunteer healthy female patients. P<0.05 was evaluated as statistically significant.

Results: In our study, age distribution of FS group (N=200) was 40.6±10.8 and for control group (N=185), it was 43.0±14.8. In the control group, 58 people was A type (%31,4), 29 people was B type (%15.7), 23 people was AB type (%12.4) and 75 people (40.5%) was O type blood group according to ABO classification system. In the FS group, 60 people was A type (%30), 21 people was B type (%10.5), 10 people was AB type (%5) and 109 people (54.5%) was O type blood group according to ABO classification system. In both groups, a statistically significant difference was observed (p=0.03). There were more O type blood group carrying patients were detected in FS group.

Conclusion: Most of the treatments used for FS are not effective. In order to decrease oxidative stress, weight management, nutritional condition, diet and nutrition supplement are important in these patients. To see more O type carrying people in FS group will guide us for etiopathogenesis, monitoring, clinical follow and treatment.

Keywords: fibromyalgia - ABO blood type –nutrition.

О ҚАН ТОБЫ ФИБРОМИАЛГИЯ СИНДРОМЫНА ҚАТЕРЛІ ФАКТОР БОЛЫП ТАБЫЛА МА? ФИБРОМИАЛГИЯ СИНДРОМЫ КЕЗІНДЕГІ ТАМАҚТАНУДЫҢ МАҢЫЗДЫЛЫҒЫ

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ТҰЖЫРЫМДАМА

Мақсаты: Фибромиалгия синдромы (Фс) белгілі анатомиялық нүктелердегі араласқан ауыру мен сезімталдықпен сипатталады және көңіл-күйдің, ұйқының және таным қабілетінің бұзылуымен пайда болады. Осындай пациенттердің өмір сүру сапасы бұзылған және бұл жағдай денсаулық сақтау жүйесінде маңызды экономикалық проблема тудырады.

Эритроциттердің бетіне орналасқан әртүрлі антиденелерге сәйкес А, В, О және АВ сияқты қан топтарының әр түрлері бар. Қан тобының әр түрлері үшін тамақтану бойынша ұсыныстар беру соңғы онжылдықта ең өзекті тақырыптардың бірі болды. Осы зерттеуде біз ФС мен АВО қан тобының түрлері арасындағы байланысты зерттедік.

Әдістері: Осы зерттеуге біз 200 пациентті – ФС-мен әйелдерді кіргіздік (Американдық ревматология колледжінің 2010 жылғы өлшемдеріне сәйкес), ол әйелдер біздің физикалық медицина және оңалту клиникамызға 2015 жылғы шілде мен желтоқсан аралығында келді. Пациенттің жасы, қан тобы, резус-антигені жүйесі сақталды. Бақылау тобы сондай-ақ 185 дені сау, ерікті әйелдерден құралды. P<0.05 статистикалық мәнді көрсеткіш ретінде бағаланды.

Нәтижелері: Біздің зерттеуде ФС тобын жасына қарай үйлестіру 40.6±10.8 жас болды, ал бақылау тобына (N=185) 43.0±14.8 жасты құрады. Бақылау тобында 58 адам А қан тобымен болды (%31,4), 29 адам – В (%15.7), 23 адам – АВ (%12.4) және 75 адам О қан тобымен (40.5%), АВО жіктеу жүйесіне байланысты. ФС тобында 60 адам А қан тобымен (%30), 21 адам – В (%10.5), 10 адам – АВ (%5) және АВО жіктеу жүйесіне байланысты 109 адам (54,5%) О қан тобымен. Екі топта да статистикалық айырма (p=0,03) байқалады. ФС тобында О қан тобымен пациенттер аса көп анықталды.

Қорытынды: ФС-ға арналып қолданылған емдеудің көптеген тәсілдері тиімді емес. Қышқылдандыратын стресті төмендету үшін бұл пациенттерге маңызды: салмақты түзету, диетарлық мәртебесі, диеталық және құнарлы қоспалар. ФС тобындағы О қан тобымен пациенттердің көбі бізді этиопатогенезге, мониторингілеуге, клиникалық бақылауға және емделуге жолдайды.

Маңызды сөздер: фибромиалгия – АВО қан тобының түрі – тамақтану.

ЯВЛЯЕТСЯ ЛИ ГРУППА КРОВИ О ФАКТОРОМ РИСКА ДЛЯ СИНДРОМА ФИБРОМИАЛГИИ? ЗНАЧИМОСТЬ ПИТАНИЯ ПРИ СИНДРОМЕ ФИБРОМИАЛГИИ

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РЕЗЮМЕ

Цель: Синдром фибромиалгии (СФ) характеризуется диффузной болью и чувствительностью в определенных анатомических точках и появляется вместе с расстройствами настроения, сна и познавательной способности. Качество жизни таких пациентов было испорчено и эта ситуация создает важную экономическую проблему в системе здравоохранения.

В соответствии с различными антигенами, размещенными на поверхности эритроцитов, существует четыре разных типа группы крови, такие как А, В, О и АВ. Дать рекомендации по питанию для различных типов группы крови стало одной из самых актуальных тем в последние десятилетия. В настоящем исследовании мы изучили связь между СФ и типами группы крови АВО.

Методы: В настоящее исследование мы включили 200 пациентов, женщин с диагнозом СФ (в соответствии с критериями Американского колледжа ревматологии 2010), которые обратились в нашу клинику физической медицины и реабилитации в период с июля по декабрь 2015 года. Система возраста, группы крови, резус-антигена пациента были сохранены. Контрольная группа также была сформирована из 185 здоровых женщин добровольцев. P<0.05 был оценен как статистически значимый показатель.

Результаты: В нашем исследовании, возрастное распределение группы СФ (N=200) было 40.6±10.8 лет, а для контрольной группы (N=185), составило 43.0±14.8 лет. В контрольной группе, 58 человек было с группой крови А (%31,4), 29 человек - В (%15.7), 23 человека - АВ (%12.4) и 75 человек (40.5%) с группой крови О, в соответствии с классификационной системой АВО. В группе СФ, 60 человек с группой крови А (%30), 21 человек - В (%10.5), 10 человек - АВ (%5) и 109 человек (54.5%) с группой крови О, в соответствии с классификационной системой АВО. В обеих группах, наблюдалось статистически значимое различие (p=0.03). Больше пациентов с группой крови О выявлено в группе СФ.

Заключение: Большинство способов лечения, использованных для СФ не эффективны. Для того, чтобы снизить окислительный стресс, для этих пациентов важны: коррекция веса, диетарный статус, диетические и питательные добавки. Больше пациентов с группой крови О в группе СФ направит нас на этиопатогенез, мониторинг, клиническое наблюдение и лечение.

Ключевые слова: фибромиалгия – тип группы крови АВО – питание.

Introduction

Fibromyalgia syndrome (FS) is a complex disease which characterized by diffuse pain and sensitivity and it shows up as a central pain paradigm. Since it is frequently seen in people in the same family, it is thought that it has a genetic origin [1]. In the diagnosis of the FS, we see some heterogeneous disorders which contains neuroendocrine, neuropsychiatric and autonomous systems. Psychological incapability-related personality traits are also seen in FS patients [2,3].

There are four different blood groups. This difference is sourced from different antigens localized on the surface of the red blood cells. These antigens recognize foreign agents and they produce specific antibodies against them [4]. FS is a multisystem disorder that we have been still learning. There is not any data which links FS and ABO blood types in the literature. In this study, we aimed to investigate the relationship between FS and ABO blood types in terms of etiology, clinical follow-up and treatment procedure.

Material and methods

In this study, we included 200 female patients with FS diagnosis (according to American College of Rheumatology, 2010 criteria) who visited our Physical Medicine and Rehabilitation Clinic between July 2015 and December 2015. FS patients' age, blood group, Rh antigen system were saved. Control group was also formed from 185 volunteer healthy female patients. Both groups were compared in terms of their age, ABO blood type and Rh antigen systems. All patients were informed about the study, which was performed according to the terms of the Helsinki Declaration and received prior ethics committee approval.

The SPSS21 version was used for data analysis. Normal distribution of data was checked using the Kolmogorov–Smirnov test. For each parameter, a comparison was done between the two groups group. The t-test was used for normally distributed groups while the Mann–Whitney U-test was used for abnormal distribution. P<0.05 was evaluated as statistically significant.

Results

In our study, age distribution of FS group (N=200) was 40.6±10.8 and for control group (N=185), it was 43.0±14.8. In the control group, 58 people was A type (%31,4), 29 people was B type (%15.7), 23 people was AB type (%12.4) and 75 people (40.5%) was O type blood group according to ABO classification system. In the FS group, 60 people was A type (%30), 21 people was B type (%10.5), 10 people was AB type (%5) and 109 people (54.5%) was O type blood group according to ABO classification system. In both groups, a statistically significant difference was observed (p=0.03). There were more O type blood carrying patients were detected in FS group. In control group, H antigen positive patients were 172 (93%) and negative patients were 13 (7%) in terms of Rh antigen. On the other hand, there were 180 H antigen positive patients (90%) and 20 negative patients (10%) in FS group. There was not

statistically different between two groups (p=0.19). The findings of the study were summarized in Table 1.

Table 1 The summary of results

	Control	FS patient	p value
	n: 185	n:200	
Age	43.0±14.8	40.6±10.8	-
Blood group (n %)			0,003
A	58 (31.4)	60 (30)	
B	29 (15.7)	21 (10.5)	
AB	23 (12.4)	10 (5)	
O	75 (40.5)	109 (54.5)	
Rh (n %)			0,19
Positive	172 (93)	180 (90)	
Negative	13 (7)	20 (10)	

Discussion

FS affects 1-5% of the population and almost 90% of the patients are women. Since FS is a quite important health problem, there are lots of researches to identify its pathophysiology. Although its etiology is not known, people are more focused on combination of both genetic tendency which triggers gene expression and environmental exposure [5].

In the last two decades, studies showed that etiology of FS is sourced from a genetic polymorphism in catecholaminergic, dopaminergic and serotoninergic systems of pain transmission and process. Genetic factors may play a role in the development and the progression of this disease. It is thought that, FS belongs to effective spectrum disorders which contains psychiatric and medical disorders [6]. The co-occurrence of FS and psychological disorders stands for a physiopathology that is related with change in neurotransmitter level. Since the cognitive behavior therapy and antidepressant drugs are effective on FS treatment, this situation supports the relationship between FS and psychiatric, psychological and behavioral factors [2].

Torres X and colleagues categorized FS patients according to their personality traits, clinical seriousness, psychosocial problems and they compared their results in the end of 6-months treatment procedure [7]. It was observed that patients in group 1 were still anxious and depressed after treatment. Personality-related sub-classification of the patients may provide a chance to develop specific treatment strategies.

ABO blood groups were discovered by an Austrian scientist, Karl Landsteiner. Today, International Society of Blood Transfusion (ISBT) defines 29 different blood types. ABO blood system consists of four antigens (A, B, D and AB). These are oligosaccharide antigens and they are usually expressed on the plasma membrane of red blood cells and they are also expressed in saliva and blood serum [8]. Blood type classification depends on the contribution of the ABO and H genes. D or Rho antigen is the closest blood type antigen to ABO antigens. These antigens are the main components of red blood cells [9]. When they are normal they provide stability to plasma membrane, otherwise they shorten cellular lifetime.

The link between blood type and personal traits became an issue of concern in some countries in like Japan. İn the study of Mao X et al, a significant correlation was detected between ABO blood types and Type A behavior [10]. According to a study which is done in Japan by Nawata K, any relationship was not shown between blood type and personality [11]. In recent studies, some results prove a relation between either ABO and dopamine beta-hydroxylase genes or ABO blood type and decreased oocyte reserves [12,13]. Therefore, we can conclude that there is not any scientifically proven finding between ABO blood types and personal traits.

In 1996, naturalist Dr. Peter D'Adamo published his study which is titled Eat right for your typ [14]. According to D'Adamo, an ideal and healthy diet is not universal, but it can be modified by individual's blood type. He states that, blood type defines which food is beneficial for body chemistry, immune system and blood type-related weight loss depends on these elements. D'Adamo refers that since our ancestors usually are fed with meat, O blood type mostly fits with a diet which consists of plant, root, fruit, seed and nut. Type A came up after soil frameworks, therefore individuals with Type A blood mostly tolerate seeds. Since type B came up in the period which milk products consumed, these individuals with type B blood can tolerate dairy products [14].

In the last decade, diets depend on ABO blood system are thought to be healthy and they are thought as a good method to decrease several diseases. The efficiency of blood type dependent diets has not been proven, yet. It has not been any diet shown to help patients with chronic diseases like FS, yet [15,16].

In FS treatment, various types of medical interventions are used; a multidisciplinary treatment approach which contains pharmacologic and non-pharmacologic treatment modalities. Nutritional managements are promising ones in terms of non-pharmacologic treatment approaches [17]. Obesity and being overweight is commonly seen in FS patients and this situation decreases patients' quality of life by causing acute pain, bad sleep quality and frequent mood disorders. For this reason, weight management is a useful tool to attenuate symptoms. Besides different hypotheses about etiopathogenesis of the FS, oxidative stress is counted among possible causes. To avoid consumption of some foods which increase oxidative stress affect patients' health in a good way. Additionally, non-celiac gluten sensitivity can be seen together with FS syndrome. Avoiding gluten consumption also leads clinical improvement in FS patients. It is clear that specific dietetic interventions have positive effects on treatment [18,19].

According to our study, we can say that FS is more frequently seen in individuals carrying O type blood. The relationship between O type blood group and FS can be evaluated in different areas. Are people who have O blood type more prone to FS? How can this situation can be explained etiopathogenetically? Does this relationship between FS and blood group depend on personality disorder? D'Adamo recommends these people who are O type to consume plant, root, fruit, seed and nut, etc. [14]. It has been proven with several studies that plant-based (vegetarian), anti-oxidative type of foods is more beneficial for FS treatment. In addition, plant-based feeding provides an advantage for weight management, too. Beneficial effects of gluten-free diet on FS patients shows the importance of personal prescription.

The quality of life of these patients are low and they cannot continue with their daily activities. FS patients are young-middle aged women who are in their fertile period. These women's life quality and their contribution to national economy

cannot be denied. We need more studies investigating the effect of non-pharmacologic treatment strategies such as dietary modifications in FS treatment. We also need to give some dietary recommendations and provide some nutritional supplements to these patients, because pharmacologic treatment is not enough by itself. It is also critical to recall the importance of behavioral therapy in these patients.

Conclusion

FS is characterized with diffuse pain and sensitivity at specific anatomical points and occurs together with mood, sleep and cognitive disorders. Life quality of the patients was destroyed and this situation created an important economical issue in the medical care system. In most of the FS patients, pharmacological treatments are not effective by itself. Weight management, decrease in oxidative stress, nutritional condition, diet and nutrition supplement are quite important in terms of non-pharmacological treatment strategies. In this study, we reported that FS is more often seen in people who are O blood type and this result will be a guide for etiopathogenesis, clinical follow and the treatment. It is required to follow an individual therapy for FS patients.

There is no conflict of interest.

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