EFFECT OF THE DRUG FROM SOYBEAN AND AVOCADO ON THE COURSE OF OSTEOARTHROSIS OF THE KNEE JOINTS WITH CONCOMITANT METABOLIC SYNDROME IN WOMEN IN THE MENOPAUSAL PERIOD

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Abstract: The most common articular pathology is osteoarthrosis of the knee joints. More than 10 % of the world's population suffers from this disease. The development of osteoarthrosis (OA) is also affected by metabolic syndrome (MS), which is characterized by abdominal obesity, dyslipidemia, arterial hypertension and disturbance of carbohydrate metabolism. The combination of MS and osteoarthrosis creates conditions of overload for the functioning of axial joints, which is one of the main causes of premature disability and invalidization of the population.

Treatment of OA of the knee joints in women in the menopausal period with concomitant metabolic syndrome presents great difficulties. To achieve a stable result of treatment, therapy with chondroprotectors and nonsteroidal anti-inflammatory drugs (NSAIDs) is used. Treatment was carried out in 60 women in the menopausal period with MS, suffering from OA of knee joints. In the group of women in the menopausal period with OA of knee joints and MS who took therapy with the inclusion of the soybean and avocado drug alongside with NSAIDs, a significant effect was obtained with regard to arresting the pain syndrome, improving the quality of life, reducing the degree of inflammation as well as increased joint mobility compared with the group of patients, who took only chondroprotectors and NSAIDs.

Keywords: osteoarthriosis, knee joints, metabolic syndrome, women, menopausal period, soybean and avocado drug.

1. Introduction

Osteoarthrosis (OA) is the most common form of the articular pathology, which is based on degeneration of the articular cartilage with subsequent or simultaneous changes in bone articular surfaces and underlying bone, development of marginal osteophytes, deformation of the joint [1–3]. Women are more susceptible to the disease at the age of 50–60, after 60 years old the disease occurs in almost all people [2–4].

Female gender, advanced age, endocrine and metabolic disorders, overweight, muscle weakness, joint trauma, overload, surgery and inflammatory joint diseases are the main risk factors for OA development [5, 6].

The combination of the metabolic syndrome (MS) and osteoarthrosis creates conditions for congestion of functioning of axial joints, which is one of the main causes of premature disability and invalidization of the population [4, 7].

In the treatment of OA, the main task is to slow down the progression of the disease, preserve the structural and functional integrity of the cartilage and, thus, to improve the quality of life and prevent disability. And the tasks of symptomatic therapy – reduction of pain and inflammation and frequency of exacerbations are also solved [8, 9].

According to the classification of drugs for the treatment of OA recommended by the WHO committee and supported by OARSI, there are symptomatic drugs of rapid action, slow-acting symptomatic drugs (SYSADOA) and drugs that modify the course of the disease [9, 10].

Slow-acting symptomatic drugs such as chondroitin sulfate, glucosamine sulfate, unsaponifiable extracts of soybean and avocado (Piascladin 300), diacerein and hyaluronic acid have a positive effect on pain and dysfunction after a few months, and this result persists for some time after discontinuation of treatment. Treatment with these drugs is accompanied by a decrease in the need for analgesics and NSAIDs [9, 10].

The aim of the study was to determine the effect of the drug from soybean and avocado on the course of osteoarthrosis of knee joints with concomitant metabolic syndrome in women in the menopausal period.

2. Material and Methods

The study has been conducted in 2016 for 3 months at the rheumatology department on the basis of the University Clinic of Odessa National Medical University.

The study included 60 women aged 50 to 75 (mean age 62.17±7.67), with a reliable diagnosis of knee osteoarthrosis according to the criteria of the American College of Rheumatology (ACR), having the I–II radiological stage according to Kellgren-Lawrence, the menopausal period (the average duration of menopause is 8.5±0.43 years) and with the metabolic syndrome (body mass index more than 25 kg/m², SBP/DBP – 149+1.5/87+ +0.9, mm, OT 95 4±0.94 cm, glucose – 5.9±0.03 mmol/l, insulin – 14.6+0.07 μED/ml). All patients were divided into 2 groups of 30 people according to the treatment. Group I patients underwent therapy with NSAIDs in the form of the drug movalis 15 mg per day as well as a preparation of soybean and avocado (Piaskledin-300) 1 tablet per day for 3 months. Patients of group II were treated with NSAIDs and a chondroprotector in the form of an arthron-complex preparation for 3 months. Before and after treatment, all patients underwent X-ray examination of knee joints, study of acute phase indices (ESR, CRP, seromucoids, fibrinogen) to assess the severity of inflammation. All patients underwent pain syndrome assessment by visual analogue scale (VAS), WOMAC index quality of life assessment and joint mobility study with the help of a goniometer to determine active and passive joint mobility.

3. Results

After the therapy with the administration of soybean and avocado drugs for 3 months in Group I, there was a significant improvement in the clinical course of osteoarthrosis of knee joints more pronounced than in Group II, where NSAIDs and chondroprotectors were prescribed. The intensity of pain according to the VAS significantly decreased by 26.6 % (**Table 1**) and the quality of life improved by 29.2 % in all indices of the WOMAC index (**Table 2**).

Table 1

Dynamics of the intensity of the pain syndrome before and after treatment in both groups

Index of the pain syndrome	I group (n=30 M±m)		II group (n=30 M±m)	
	Before treatment	After treatment	Before treatment	After treatment
Pain intensity by VAS	5.97±0.05	4.38+0.04*	5.96+0.06	5.63±0.03*,**

Note: ** – the reliability of differences between the indices before and after treatment p <0.05; ** – reliability of differences in the indices after treatment in I and II groups p<0.05*

According to the laboratory and clinical data, the severity of inflammatory reactions after therapy with the use of the drug from soybean and avocado in group I and the standard drug therapy in group II significantly decreased (**Table 3**). The mobility of knee joints was assessed using a goniometer in patients of different groups before and after treatment (**Fig. 1**).

Table 2
Dynamics of the WOMAC index before and after treatment in I and II groups

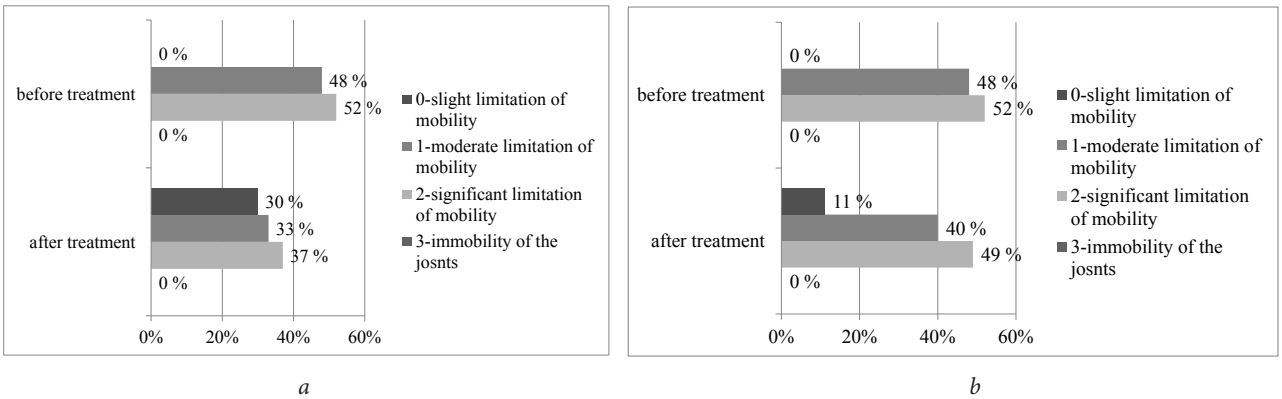
Index scale WOd MAC	I group (n=30)			II group (n=30)		% reduction
	Before treatment	After treatment	% reduction	Before treatment	After treatment	
Pain intensity	154.17±12.3	105.53±6.9*	31.5	154.31±13.3	116.33±6.9*, **	24.6
Stiffness	67.31±4.9	42.07±3.1*	37.5	68.27±6.1	53,22±3.1*, **	22
Functional insufficiency	458.36±35.3	390.81±27.5*	14.7	457.73±45.5	398.25±27.3*, **	12.9
WOMAC total	657,37±55.4	465.42±38.3*	29.2	652.57±67.3	585.17±29.4*, **	10.3

Note: ** – the reliability of differences between the indices before and after treatment p<0.05; ** – reliability of differences in the indices after treatment in Iand II groups p<0.05*

Table 3
Dynamics of inflammatory indices in women in the menopausal period with OA of knee joints and MS under the influence of treatment in both groups

Index	I group n=30 M±m		II group n=30 M±m	
	Before treatment	After treatment	Before treatment	After treatment
CRP, mg/l	9.1±0.01	5.4±0.02*	9.2±0.01	6.3±0.02*, **
Fibrinogen, g/l	5.12±0.03	3.73±0.03*	5.23±0.05	4.24±0.05*, **
Seromucoid, units.	0.320±0.003	0.170±0.004*	0.320±0.002	0.260±0.002*, **
ESR, mm/hr	18±1.02	9±1.01*	18±1.06	14±1.03*, **
IL-1A, pg/l	7.4±0.03	4.8±0.02*	7.3±0.02	5.9±0.04*, **

Note: ** – the reliability of differences between the indices before and after treatment p<0.05; ** – reliability of differences in the indices after treatment in I and II groups p<0.05*



a *b*

Fig. 1. Assessment of joint mobility with the help of a goniometer before and after treatment in the groups under study: *a* – I group; *b* – II group

5. Discussion

The existing protocols should use high-speed symptom-modifying drugs for the treatment of osteoarthritis of knee joints, which, while giving an analgesic effect, affects the gastrointestinal tract, cardiovascular system and kidneys. Therefore, the use of the drug from soybeans and avocados allows to achieve a more pronounced effect without affecting any organs and systems of the human body.

Advantages of the results obtained are non-toxicity of this drug, its positive effect on metabolism of the articular cartilage and inhibition of intreleukin-1 (IL-1A). The disadvantage of the drug from soybean and avocado is the possibility of side effects, such as diarrhea, but this was not observed in the study.

After the treatment with the inclusion of chondroprotectors in the form of soybean and avocado Piaskledin 300 alongside with NSAIDs in women in the menopausal period suffering from OA of knee joints in combination with the metabolic syndrome, the intensity of the pain syndrome according to VAS decreased by 26.6 % ($p<0.05$) and the WOMAC index decreased by 29.2 % ($p<0.05$) in all positions: the pain severity decreased by 31.5 %, stiffness by 37.5 %, the functional insufficiency by 14.7 % compared with the group of patients who received standard medication.

Treatment with the administration of the drug from soybeans and avocado increases the mobility of the knee joints by 25 % ($p<0.05$) and decreases inflammation in women in the menopausal period suffering from OA of the knee joints by 30 % compared with group II who received the standard medication.

Proceeding from the data obtained of therapy with inclusion of the drug from soybeans and avocado, it is the most effective and expedient in the given category of patients.

In further studies, the results obtained are planned to develop as to the impact on the production of pro-inflammatory cytokines (IL-6), metabolism of the articular cartilage and the ability to inhibit the progression of the articular cartilage.

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