Complex Secondary Prophylactics of Degenerative Joint Diseases

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Positive effects of complex therapy of osteoarthrosis with alflutop and artrofoon compared to standard therapy are noted.

Key Words: *osteoarthrosis; local therapy; bioactive zones; alflutop; artrofoon*

Degenerative joint diseases are the most prevalent pathology of the locomotor apparatus; the incidence of these diseases steadily increases with increasing the age of patients and in the whole population. Chronic degenerative joint pathology, osteoarthrosis (OA), is determined by disturbed balance between anabolic and catabolic processes in the cartilage leading to its destruction [1,9]. OA is most often observed in patients of the elder age group, which confirms hypoergic basis of the disease. Not only the cartilage, but all joint components and tissues underwent degenerative changes. Inflammatory processes are mild and slow, which is clearly seen against the background of pronounced morphological changes in the joint [1,7].

The main risk factors for OA are age, sex, excess body weight, chronic minitraumas of the joint, and hypodynamia alternating with physical exercise not corresponding to the state of the musculoskeletal system [4,5,7,9].

OA patients usually complained of pain increasing after physical exercise and sometimes during the nighttime. Vicious circle is formed by degenerative changes in the paraarticular apparatus, which determines hypermobility and weakness of the joint and consequently, impairment of its function. Long-term load to the hypermobile joint often leads to compensatory synovitis. Arching sensation, crepitation, and weekness of the extremity aggravate patient's state and negatively affects its quality of life [6,7].

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Non-drug and drug therapy and surgical treatment are now used in the therapy of OA. Surgical treatment does not exclude the necessity of subsequent conservative therapy; hence, the development of effective means for conservative treatment is an actual problem. Drug therapy of OA is aimed at deceleration of disease progress, prevention of deformity development and disability, elimination of pain and suppression of inflammation, prevention of relapses and involvement of new joints into the pathological process, and improvement of patient's quality of life.

Monotherapy is low efficient in OA due to involvement of practically all structures of the joint into the pathological process in OA and multifactorial genesis of the disease [5]. In light of this, new scheme of complex treatment of OA was developed at the Department of Traumatology and Orthopedics (Russian Medical Academy of Postgraduate Education). This scheme is adapted for different stages of the disease (exacerbation, chronization, and remission), does not include antiinflammatory steroids, minimizes the use of nonsteroidal antiinflammatory drugs (NSAID), and reduces to minimum the risk of drug-induced complications. The latter became possible after appearance of artrofoon, a new antiinflammatory drug, on the Russian market.

MATERIALS AND METHODS

The study included 184 patients (age 17-72 years) with OA. The patients were divided into 3 groups depending on the prescribed therapy. Group 1 patients (n=129, 32

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men and 97 women) received basis therapy. In group 2 patients (*n*=12, 8 men and 4 women), injection therapy according to BAASZ (bioactive arthrospecific zones) was performed against the background of basis therapy. In group 3 patients (*n*=43, 17 men and 26 women), basis therapy and BAASZ injection therapy were supplemented with artrofoon and tenoten.

The basis therapy included NSAID (nise, nimesulid, *etc.*, 3-6 days) chondroprotectors (dona, 2-3 months), local antiinflammatory drugs (dimexide, 6-10 days), steroids, exercise therapy, physiotherapy, and orthoses.

BAASZ injection therapy consisted in injection of a mixture of alflutop (2 ml), local anesthetic (novocaine), and vitamin B_{12} 7-12 times every 6 months over 1.5 years.

Atrtofoon was administered in a dose of 4 or 8 tablets per day (depending of the disease severity) for 1 month and then 4 tablets per day for 3-5 months. Tenoten was given to patients with labile psychoemotional status in a dose of 3 tablets per day for 2-4 months.

The mean duration of the disease in all groups was 12.3±6.7 years. The distribution of patients in groups by the localization and stage of the disease is presented in Table 1.

All patients complained pain syndrome (80-100% subjective score).

Patients with Kellgren X-ray grade I OA were not included in the study.

Concomitant pathologies were the follows: cardiovascular diseases (*n*=89), primarily arterial hypertension (*n*=76) and CHD (*n*=13), type 2 diabetes mellitus (*n*=29), gastric ulcer (*n*=26), chronic gastritis (*n*=123), chronic renal pathologies, including urolithiasis (*n*=71), dyscirculatory encephalopathy (*n*=21), and history of allergic reactions (*n*=19).

The efficiency of treatment was evaluated by the degree of pain control during day and nighttime, increase in joint mobility, gait improvement, increase in pain-free walking distance, and improvement of patient's quality of life. Before the start of treatment, the patients were asked to itemize the negative impacts of the disease on their life and after the course of treatment, changes were evaluated. In grade II and III OA, repeated drug-free remission for at least 12 months was considered as a good result.

The dynamics of pain syndrome was evaluated during interview using a subjective scale (from 100 to 0%). The patients were examined every 3 months, which allowed to control the duration of remission: the absence of pain or short-term painful sensations not requiring drug therapy with analgesics, active independent life.

The proposed method is patented and approved by Federal Service for the Supervision of Public Health and Social Development.

RESULTS

In group 3, the pain syndrome gradually decreased during treatment and by the end of the first month 93% patients noted gait improvement, significant increase in pain-free walking distance, and complete disappearance of nighttime pains. Pain after heavy physical exercise did not require administration of anesthetics and disappeared after reducing the load or after improvement of the muscular casket of the extremity.

Examination after 3 months revealed improvement in the psychoemotional status of patients. The patients looked more cheerful and demonstrated better compliance to the treatment and better adherence to doctor's recommendations, which is very important in cases when the patient should independently take the drugs and maintain the tonus of the muscles of the segment.

Patient's well-being significantly improved against the background of both AF and NSAID treatment. This

TABLE 1. Distribution of Patients by the Localization and Stage of the Disease

Parameter			Group 1	Group 2	Group 3
Total			129	12	43
Coxarthrosis	unilateral	stage II	10	3	3
		stage III	7	1	3
	bilateral	stage II	7	2	5
		stage III	2	0	3
Gonarthrosis	unilateral	stage II	32	2	9
		stage III	27	0	7
	bilateral	stage II	21	4	5
		stage III	23	0	8

manifested in increased mood, reduced irritability, and sleep normalization primarily due to night pain relief. Addition of artrofoon to complex therapy significantly increased the number of patients with good results of treatment (93 and 75% in groups 3 and 2, respectively).

In group 3, functional state of the knee joint significantly improved: initial knee joint flexion was 99.7±8.2°, this parameter increased to 112.6±7.1° after 2 weeks and to 125.7±7.9° after 2 months of treatment (the corresponding values in group 2 were 113.7±6.8°, 119.8±7.3°, 125.2±6.9°, respectively). Positive dynamics was also noted in patients with involvement of the hip joint (Table 2): they became able to put on their shoes without assistance, to sit in the proper position, to improve gait, to refuse walking stick, *etc.*

In 27 patients of group 2, joint pains increased after the first 3 injections, but then the pain disappeared and negative symptoms of the disease rapidly regressed (Table 3). In 1 patient, local allergic reaction developed in response to injection therapy; it consisted in moderate edema of the paraarticular tissues without symptoms of synovitis and was probably related to individual reaction to alflutop reported by the manufacturer in extremely rare cases. No other complications and disease aggravations were noted against the background of therapy.

Laboratory parameters (alkaline phosphatase, ionized and total calcium, phosphorus, magnesium; biochemical tests and differential blood count) did not change after treatment. There were no negative changes in the cardiovascular system and parenchymatous organs.

Addition of artrofoon to the complex drug therapy of degenerative skeleton pathology allowed us to minimize the use of standard antiinflammatory drugs inducing various side effects, which is very important in the treatment of elderly patients.

TABLE 2. Results of Conservative Treatment of Coxarthrosis in the Main and Control Groups

Result	Parameter	Number of patients, %		
		group 1	group 2	group 3
Control of pain syndrome	100%	0	0	50
	95-80%	0	66.67	35.71
	<80%	15.38	33.33	14.29
	without effect	84.62	0	0
Duration of remission	<6 months	100	0	0
	6-12 months	0	50	28.57
	1-2 years	0	33.33	28.57
	>2 years	0	16.67	42.86

TABLE 3. Results of Conservative Treatment of Gonarthrosis in the Main and Control Groups

Result	Parameter	Number of patients, %		
		group 1	group 2	group 3
Control of pain syndrome	100%	0	66.67	79.31
	95-80%	2.91	16.66	17.24
	<80%	9.71	16.67	3.45
	without effect	87.38	0	0
Duration of remission	<6 months	78.64	0	0
	6-12 months	18.45	50	20.69
	1-2 years	2.91	33.33	44.83
	>2 years	0	16.67	34.48

In group 3 patients, the quality of life improved against the background of treatment, which manifested in alleviation of night and day pains and improvement of psychoemotional status.

The results of our study demonstrated good tolerability of the developed algorithm in the treatment of patients with degenerative diseases of large joints its clinical efficiency and safety in the examined patients.

The objective of the developed method of complex conservative treatment of patients with OA was complete retirement of corticosteroid preparations and minimal use of NSAID. The risk of septic complications, aggravation of destructive processes in the cartilage and subchondral bone, risk of synovitis exacerbation, and a wide spectrum of negative somatic effects, in particular negative influences on blood rheology and adherent properties reduce to minimum the positive effect of steroid therapy in elderly patients. NSAID, apart from transient negative influences on the gastrointestinal tract, produce various negative effects on the whole organism. Slow development of these negative impacts is masked by elderly age and high incidence of somatic pathology in elderly individuals and is usually not considered as a consequence of NSAID treatment. Superficial analysis of the general state of patients often using NSAID revealed wider polysomatic pathology compared to individuals never or rarely using NSAID. The use of artrofoon as the basis peroral drug in the complex therapy and in some cases as monotherapy allows reducing the use of NSAID in patients with degenerative joint diseases and managing without drugs during remission.

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