



Efficiency of combined treatment and conventional physical treatment in bilateral knee arthrosis

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ABSTRACT

Introduction: Degenerative joint disease, which is standardized in Europe by the name of arthrosis or osteoarthritis, while in the Anglo-Saxon literature is in use for a long time by the name of osteoarthritis (OA) although this is not a classical inflammation, is the most common joint disease in general and the most common cause of functional damage of the musculoskeletal system. Recently, the term osteoarthritis appears more frequently in domestic literature. Arthroses are degenerative joint diseases with progressive character, also one of the most frequent diseases in orthopedics. The disease first affects the articular cartilage, then the bony edges of the articular surfaces, and then the articular lining.

Methods: Retrospective analysis and evaluation of data of treated patients, with the "Praxis" physical treatment during the period of time from 2000 to the end of 2010 on a sample of 79 patients, valorized the efficacy of Praxis treatment. The correlation of these results, with valorisation of the efficacy of standard physical treatment in clinics D.Z. "Novi Grad" on a sample of 81 patients, during the period of time from 2000 to the end of 2010, a statistical analysis was performed for comparing the efficacy of the two methods.

Results: There is a functional difference after therapy of bilateral gonarthrosis in clinics D.Z. "Novi Grad" and "Praxis" with statistical reliability.

Conclusion: A combined approach in the treatment of knee arthrosis has a wider range of treatment procedures, comprehensively approaches to the problem and gives better results, so we can say that this method has priority compared to the standard approach to the knee arthrosis treatment.

Keywords: Gonarthrosis, a combined approach.

INTRODUCTION

Arthroses are degenerative joint diseases with progressive character, also one of the most frequent diseases in orthopedics. The disease first affects the articular cartilage, then the bony edges of the articu-

lar surfaces, and then the articular lining. Arthroses represent a huge socio-medical problem (1).

They are medical problem because their cause is still not known, and social due to the fact that there are many arthroses, that in industrially and economically developed countries appearing in increasing numbers, that the hardest of them affect people of mature age (maximum working ability and productivity), that are progressive in their course and eventually cause increasing damage to the locomotor organs. Arthroses usually occur in the joints of the

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knee (gonarthrosis), hip, hand, and spine joints, but can affect any joint (2). Gonarthroses are divided into a primary and secondary.

The cause of knee arthrosis (gonarthrosis) is not known. Most likely there are more and interdependent. In most of the gonarthrosis we do not know the cause and their formation (primary arthroses). In a small number of these disorders the cause that contributes to the development of the disease is known (secondary arthroses) (3).

Past experiences show that more frequently approaches to the patients with diagnosis of gonarthrosis are from aspects of treatment of the symptoms and rehabilitation of consequences of the disease. Much less attention has been paid to the education and prevention which would reduce the risk of the disease and thereby increase the social and economic benefits of the population (4).

Until today it has not been found a way of treatment that can change, stop or reverse the processes that are the basis for the emergence of degenerative changes. Extensive study of the essence of the emergence and development of arthrosis and a better understanding of the process arouse hope in developing the specific treatments that will stop and fix a degenerative damages. Until then, it remains a number of measures and procedures that can reduce pain, repair function of the musculoskeletal system and improve patient's quality of life. In the therapy of gonarthrosis we use conservative methods and surgical approach (5).

There are several modalities in the approach to treatment of the knee arthrosis but the two approaches proved the most successful: the conventional approach used in D.Z. "Novi Grad" and combined treatment in clinics "Praxis" treating bilateral knee arthrosis.

In conventional physical method of treatment of the knee arthrosis, which is used in the D.Z. "Novi Grad", is most often used: Ultrasound, IFS, TENS, DDS, manual massage, cryo massage or paraffin (6). From kinesitherapeutic procedures are used: pendulous exercises active and actively assisted exercises, thigh and popliteal muscle strengthening exercises.

This method, although yielding results in the treatment of knee gonarthrosis, has certain disadvantages. The disadvantage of this method is that it does not have the breadth in applying of therapeutic meth-

ods due to limited equipment owned by clinics D.Z. "Novi Grad".

Also, due to the large number of patients they are not able to devote enough time to each patient, as well as educate patients about preventive measures and activities of daily living.

Combined approach in the treatment of knee arthrosis includes non-pharmacological and pharmacological phase of conservative treatment, and can be divided into: general measures, treatment by systemic supplying with medications, local injection of drugs into joints, physical therapy which has given the best results so far.

Combined treatment of knee arthrosis which is implemented in the clinics "Praxis" has a wider range of treatment procedures. In addition to standard procedures of physical therapy, combined treatment has a general measures which include besides the treatment, education and training of patients. The nature and main characteristics of the disease should be explained and familiar the patient with current methods and possibilities of treatment. Tips on the proper way of life are often very important, maintaining ideal body weight, the daily regime of movement and resting in order to avoid or delay disability and immobility and to change the way of work or occupation if necessary.

According to epidemiological studies obesity is the most important single factor in emerging arthrosis that can be influenced on. Increased body weight increases the risk of knee arthrosis in both sex. Reduction in body weight can reduce symptoms and possibly slows down disease progression (7).

The research aims were to estimate the efficiency of the conventional physical treatment in D.Z. „Novi Grad“ and combined treatment in the clinics "Praxis" in treating bilateral knee arthrosis, and estimate the efficiency of the combined treatment in both gender, age groups and professions.

METHODS

Respondents

The study included all patients who contacted the CBR clinic "Praxis" because of the pain in the knee joint and verified diagnosis of bilateral knee arthrosis (gonarthrosis) in the period of time from 01.01.2000 to 31.12.2010, 79 patients. The control group consisted of all patients who contacted

CBR clinic D.Z. „Novi Grad“ because of the pain in the knee joint and verified diagnosis of bilateral knee arthrosis (gonarthrosis) in the period from 01.01.2000 to 31.12.2010, 81 patients.

Procedures

Standard physical therapy of knee arthrosis used in D.Z. „Novi Grad“ is a routine treatment where from physical procedures ultrasound, IFS, TENS, DDS, manual massage, cryo massage or paraffin were used. Kinesitherapeutic procedures were also performed i.e. pendulous exercises active and actively assisted exercises, thigh and popliteal muscle strengthening exercises (8).

"The Praxis" method in the treatment of knee arthrosis is a special (combined) method, where in addition to standard physical procedures : local installation of drugs intrarticular installation of medicines, acupuncture, DDS, electromagnetic therapy are used. From kinesitherapeutic procedures, in addition to standard procedures, there are also applied active exercises of load, special exercises for spinal correction and patient education about the disease, method of treatment and programming of load in daily and working activities (9).

Research instruments

Condition of patients before treatment was verified by the following scale:

- score "0" - unable to perform DA (daily activities), dependent on others assistance
- score "1" - permanently unable to work, capable of DA
- score "2" - temporarily unable to work
- score "3" - capable of DA with limited working ability
- score "4" – supplementary qualification or re-training required
- score "5" - capable of DA and work
- score "6" - left treatment
- score "7" - further medical rehabilitation needed

Instruments to demonstrate the efficiency of the treatment: The efficiency of the treatment is expressed with the assessment of the results of the clinical condition after the treatment objectively valorised according to the following scheme:

- score "0" zero: unchanged condition (without treatment results),

- score "2": minimal improvement,
- score "3": satisfactory functional improvement with sequels, (sensory or motor),
- score "4": good improvement and satisfactory functional restitution with minimal sequels,
- score "5": good restitution without consequences of injury or disease.

The criteria for inclusion into the study were patients who have pain and limited mobility in the knee joint and patients with verified diagnosis of bilateral knee arthrosis (gonarthrosis). The criteria for exclusion were inadequate diagnosis, lost follow up, incomplete medical history.

RESULTS

TABLE 1. Presentation of prevalence of the billateral primary gonarthrosis in both gender in the clinics D.Z. "Novi Grad"

Gender	Men	Women
Number of patients	10	71

TABLE 2. Presentation of prevalence of the billateral primary gonarthrosis in both gender in the clinics "Praxis".

Gender	Men	Women
Number of patients	12	67

TABLE 3. Presentation of respondents with bilateral gonarthrosis by occupations in clinics D.Z. "Novi Grad", "Praxis" and total.

Occupation	N.G.	Praxis	total
Doctor	1	2	3
Veterinarian	0	0	0
Teacher	3	1	4
Engineer	0	2	2
Lawyer	0	2	2
Economist	0	7	7
Employee	10	13	23
Farmer	0	0	0
Officer	3	15	18
Craftsman	0	0	0
Housewife	19	15	34
Pupil	0	0	0
Student	0	0	0
Retired	41	22	63
Others	4	0	4
	81	79	160

TABLE 4. Presentation of respondents with bilateral gonarthrosis by age group in clinics D.Z. "Novi Grad" and "Praxis".

Age	N.G.	Praxis
00-07	0	0
08 14	0	0
15-24	0	0
25-34	0	1
35-44	1	8
45-54	4	18
55-64	31	21
65-99	45	31
total	81	79

TABLE 6. Functional status before therapy in respondents with bilateral gonarthrosis in clinics D.Z. "Novi Grad" and "Praxis".

scores	funkc.status before therapy N.G.	funkc.status before therapy Praxis
0	0	0
1	2	1
2	0	2
3	79	63
4	0	13
5	0	0
6	0	0
total	81	79

DISCUSSION

In respondents with bilateral gonarthrosis treated in clinics „Novi Grad“, out of the 81 respondents 50.6% were retired and 23.4% housewives. In respondents with the same diagnosis treated in the clinics "Praxis," out of the 79 respondents only 27.8% were retired, housewives and officers each with 18.9% and 16% of employees.

Analysis of the data obtained in the clinics D.Z. „Novi grad“ and "Praxis", showed that the most respondents suffering from knee arthrosis are elderly. The respondents diagnosed with bilateral knee arthrosis over 65 years old, who were treated in the clinic „Novi grad“, amounts 55.5% and in the clinic "Praxis" 39.2%. From the processed data we obtained that the average age of the patients in the clinic „Novi grad“ is $X_1 = 71.26$, and in the clinic "Praxis" $X_2 = 63.76$ years. We can conclude that the respondents treated of bilateral knee gonarthrosis in

TABLE 5. Presentation of treatment results in average in respondents with bilateral gonarthrosis in clinics D.Z. "Novi Grad" and "Praxis".

scores	Treatment results N.G.	Treatment results Praxis
0	0	0
2	2	0
3	46	16
4	31	49
5	0	14
6	0	0
7	2	0
total	81	79

$$X_1 = 3,45 \quad X_2 = 3,97$$

TABLE 7. Functional status after therapy in respondents with bilateral gonarthrosis in clinics D.Z. "Novi Grad" and "Praxis".

scores	funkc.status after therapy D.Z.	funkc.status after therapy Praxis	funkc.status after therapy Total
0	0	0	0
1	2	0	2
2	0	0	0
3	57	10	67
4	10	55	65
5	10	14	24
6	2	0	2
	81	79	160

D.Z. „Novi grad“, are older on average than patients treated in the clinic "Praxis".

Respondents treated with the standard method applied in the clinic „Novi grad“, after treatment, diagnosed with bilateral knee arthrosis, 56.7% of them have been rated 3. In the clinic "Praxis", which applied a combined approach to treatment, after performed therapeutic procedures, the obtained results are that 62% of patients diagnosed with bilateral knee arthrosis has a rating of 4.

Functional status of patients diagnosed with bilateral knee arthrosis in the clinics „Novi grad“, after treatment, with score of 3 remained 70.3%, while a score 4 gained 12.3% of the respondents. Also score 5 gained 12.3% of the patients. After performed therapy, with combined approach in the treatment in the clinic "Praxis", 12.6% of respondents remained with a score of 3, 69.6% with a score of 4 and 17.7% with a score of 5.

CONCLUSIONS

From the total number of respondents, in both clinics, women make up 75% so we can conclude that they suffer more often than men. Respondents with certain professions suffer more than others.

With age increase the number of patients with knee arthrosis increases, so the most of the respondents had over 65 years of age 46.8%. Respondents in the clinics „Novi grad“, on average had a 71, and in the clinics "Praxis" 63 years. Both, clinics D.Z. „Novi grad“ and clinics "Praxis", had success in the treatment of knee arthrosis. We can conclude that the functional status is a lot better in the clinic "Praxis" in relation to the clinic „Novi grad“, after completed therapy.

A combined approach in the treatment of knee arthrosis has a wider range of treatment procedures, comprehensively approaches to the problem and gives better results, so we can say that this method has priority compared to the standard approach to the knee arthrosis treatment.

CONFLICT OF INTEREST

The authors declare no conflict of interest

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