

Ocena skuteczności fizjoterapii u chorych z koksartozą leczonych sanatoryjnie

Assessment of the Effectiveness of the Physiotherapy in Patients with the Coxarthrosis, Treated in Spa Facilities

Zbigniew Śliwiński^{1,2(A,D,B,C)}, Marlena Maskiera^{1(A,B,C)}, Marta Makara-Studzińska^{3(C,D)}, Grzegorz Śliwiński^{4(C,D,F)}, Małgorzata Starczyńska^{1(D,E,F)}

¹Uniwersytet Jana Kochanowskiego w Kielcach, Wydział Lekarski i Nauk o Zdrowiu, Kielce, Polska/
Jan Kochanowski University in Kielce, Faculty of Medicine and Health Sciences, Kielce, Poland

²Uniwersytet Medyczny we Wrocławiu, Wydział Nauk o Zdrowiu, Wrocław, Polska/
Medical University in Wrocław, Faculty of Health Sciences, Wrocław, Poland

³Uniwersytet Medyczny w Lublinie, Polska/Medical University in Lublin, Poland

⁴Uniwersytet Techniczny w Dreźnie, Niemcy/Dresden University of Technology, Dresden, Germany

Streszczenie:

Wstęp. Celem pracy była ocena skuteczności fizjoterapii u chorych z koksartozą leczonych sanatoryjnie. **Materiał i metodyka.** W badaniu wzięło udział 49 pacjentów (29 kobiet i 20 mężczyzn) leczonych w Sanatorium „Słowacki” w Busku-Zdroju na turnusie 21-dniowym. Byli to pacjenci ze zmianami zwyrodnieniowymi stawu biodrowego nie leczeni operacyjnie. Pacjenci zostali podzieleni na dwie grupy. W grupie badanej (24 osoby), zastosowano zabiegi fizykalne i hydroterapię. W grupie kontrolnej (25 osób), dodatkowo zastosowano kinezyterapię. U każdego z pacjentów wykonano: badanie ankietowe, pomiar zakresu ruchomości w stawach biodrowych, ocenę siły mięśniowej skalą Lovetta, ocenę stopnia nasilenia bólu w skali VAS, testy funkcjonalne (Linder 2, test uciskowy brzucha, test Patricka Fabre, SLR, test Tinetti, test „Up and Go”, ocenę chodu wg. Perry). **Wyniki.** Po zakończeniu 21-dniowego leczenia rehabilitacyjnego u większości pacjentów, nastąpiło znaczne zmniejszenie subiektywnego odczucia dolegliwości bólowych, znaczna poprawa funkcji ruchowych biodra oraz zmniejszenie ryzyka upadku. Przeprowadzonych badania wskazują, na uzyskanie lepszych wyników usprawniania fizjoterapeutycznego w grupie kontrolnej, gdzie dodatkowo zastosowano kinezyterapię. **Wnioski.** 1. Fizjoterapia ma wpływ na zwiększenie zakresu ruchu w stawie biodrowym we wszystkich płaszczyznach, szczególnie w zakresie ruchu zgięcia i odwodzenia. 2. Postępowanie usprawniające wpływa na poprawę stereotypu chodu u pacjentów z chorobą zwyrodnieniową stawu biodrowego. 3. Leczenie sanatoryjne u osób ze zmianami zwyrodnieniowymi stawów biodrowych zmniejsza ryzyko upadków.

Słowa kluczowe:

usprawnianie, fizjoterapia, koksartroza, leczenie sanatoryjne

Abstract

Introduction. The objective of this study has been to assess the effectiveness of the physiotherapy in patients with the coxarthrosis, treated in Spa facilities. **Materials and Methods.** The study involved 49 patients (29 women and 20 men), who have been treated in the “Słowacki” Spa in Busko-Zdrój, during their 21 days rehabilitation stay. The patients have had degenerative changes in the hip joint, which have not been surgically treated. The patients have been divided into two groups. To the study group (24 persons) the physiotherapy treatments have been applied. In the control group (25 persons), in addition there has been the kinezytherapy applied. Each of the patients has gone through: questionnaire survey, measurement of the range motion in the hip joints, muscle strength evaluation with the Lovett scale, assessment of the pain severity in the VAS scale, functional tests (Linder 2, abdominal compression test, Patrick Faber test, SLR, Tinetti test, “Up & Go” test, gait analysis according to Perry). **Results.** After the 21-day rehabilitation treatment, the majority of patients have shown a significant decrease in the subjective pain sensation, a significant improvement of the hip motion functions and a reduced risk of the patient falling down. The carried out research has indicated, that better results have been achieved in the control group, where the kinezytherapy treatment has been applied in addition. **Conclusions.** 1. Physiotherapy has an impact on increasing the hip joint range of motion, in all directions, particularly in the flexion and abduction movements. 2. The rehabilitation procedure improves the gait stereotype in patients with the osteoarthritis of the hip joint. 3. The Spa rehabilitation therapy reduces the risk of falling down in patients with degenerative changes in the hip joints.

Key words:

Rehabilitation, physiotherapy, coxarthrosis, spa therapy treatment

Research Goal

The objective of this study has been to assess the effectiveness of the physiotherapy in patients with the coxarthrosis, treated in Spa facilities.

Materials and Methods

The study involved 49 patients (29 women and 20 men), who have been treated in the "Słowacki" Spa in Busko-Zdrój, during their 21 days rehabilitation stay. The patients have had degenerative changes in the hip joint, which have not been surgically treated. In the study group, 35% of patients were between 40-49 years of age, 30% aged between 50-59 years, 25% were 30-39 years old, and 10% were older than 60 years of age. In the control group 35% of persons were between 50-59 years old, 24% of patients aged between 30-39 years and were 60 years old, and 17% patients were between 40-49 years old (Figure 1a, Figure 1b).

The duration of the disorder, in the group of 31% of patients lasted for over 6 years, 27% suffered 2 - 4 years, 16% 4 - 6 years, 14% less than one year, and 12% of the patients lived with the disorder between 1 and 2 years (Figure 2). The patients have been divided into two groups. To the study group (24 persons) the physiotherapy treatments have been applied. In the control group (25 persons), in addition there has been the kinezytherapy applied. Each of the patients has gone through: questionnaire survey, measurement of the range motion in the hip joints, muscle strength evaluation with the Lovett scale, assessment of the pain severity in the VAS scale, functional tests (Linder 2, abdominal compression test, Patrick Faber test, SLR, Tinetti test, "Up & Go" test, gait analysis according to Perry). Patients have given their consent for participation in the research and have been informed about the study purpose.

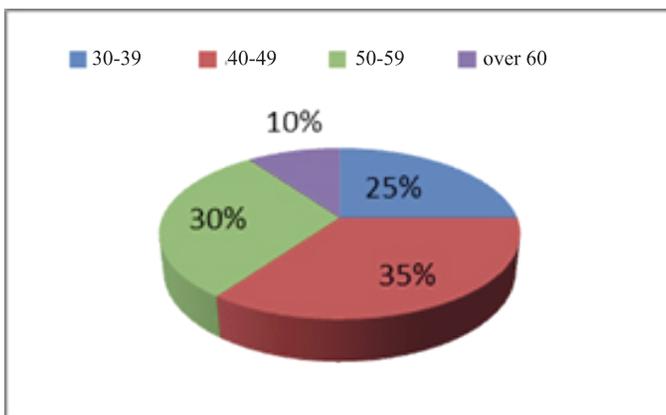


Fig. 1a. Age structure of study group

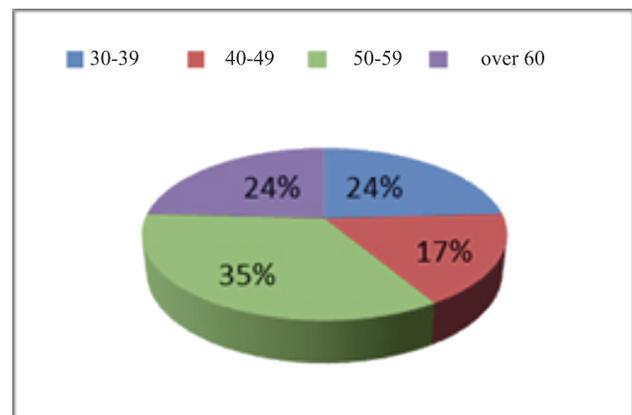


Fig. 1b. Age structure of control group

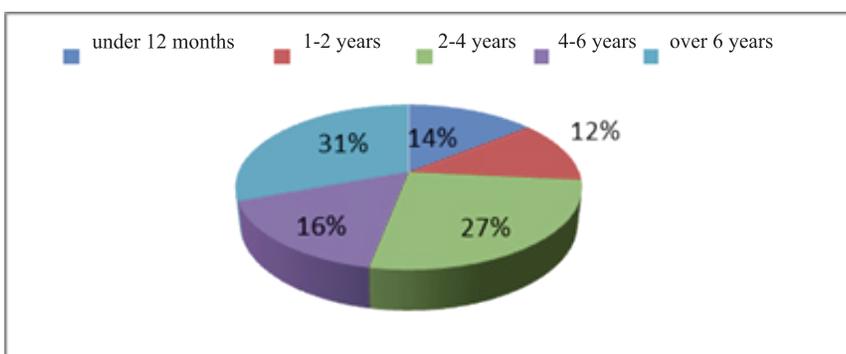


Fig. 2. Total duration of the disorder

Results

For both, the study and the control groups, there have been examinations of the hip joint moveability performed (measurements: extension, adduction, abduction, external rotation, internal rotation), and the following tests have been applied: Tinetti and "Up and Go" (Table 1). Pain level has been measured using VAS scale (Tab. 2).

Tab.1. The parameters of movements of the hip joint and the results of the Tinetti and "Up and Go" tests

Rodzaj badania Type of test	Nr badania No. of test	\bar{x}	S	min	max	$\Delta\bar{x}$
hip joint flexion test	I	74.94	17.16	19	102	7.53
	II	82.47	20.15	19	120	
hip joint extension test	I	5.84	2.79	1	11	2.65
	II	8.49	3.48	2	15	
hip joint abduction test	I	26.78	8.41	8	41	7.27
	II	34.04	8.33	14	48	
hip joint adduction test	I	23.43	5.29	8	35	5.37
	II	28.80	5.09	12	38	
hip joint external rotation	I	25.04	5.87	12	40	5.14
	II	30.18	5.76	18	40	
hip joint internal rotation	I	21.49	8.70	2	36	5.84
	II	27.33	9.47	2	40	
Tinetti Test	I	20.96	5.08	7	28	3.73
	II	24.69	3.77	12	28	
"Up and Go" Test	I	18.29	7.35	8	36	-3.45
	II	14.84	6.64	5	33	

Table 2. The parameters of muscle strength according to the Lovett Scale

Rodzaj badania Type of test	Nr badania No. of test	\bar{x}	S	min	max	$\Delta\bar{x}$
muscle strength for the hip joint flexion	I	3.37	0.67	2	5	0.61
	II	3.98	0.90	2	5	
muscle strength for the hip joint extension	I	3.65	0.69	2	5	0.49
	II	4.14	0.79	3	5	
muscle strength for the hip joint abduction	I	3.55	0.68	2	5	0.51
	II	4.06	0.85	2	5	
muscle strength for the hip joint adduction	I	3.49	0.71	2	5	0.53
	II	4.02	0.88	2	5	
muscle strength	I	3.37	0.67	2	5	0.61
	II	3.98	0.90	2	5	
muscle strength for the hip joint rotation	I	3.41	0.70	2	5	0.67
	II	4.08	0.89	2	5	
muscle strength for the internal hip joint rotation	I	3.47	0.65	2	5	0.63
	II	4.10	0.87	2	5	

During the pain assessment according to the VAS scale prior to the Spa treatment, in the study group the slightest sensation of pain (3 points) indicated 2 patients, 7 patients declared the pain intensity for 7 points, and the strongest felt pain (9 points) indicated 2 patients. At the same time, in the control group the smallest perception of pain (2 points) indicated 2 patients, the most common pain intensity, 5 points, was declared by 6 patients, severe pain (9 points) felt 5 patients, and very severe pain (10 points) indicated 1 patient (Fig. 3a, Fig. 3b).

During the pain assessment according to the VAS scale after the Spa treatment, in the study group the slightest sensation of pain (1 point) indicated 1 patient, 5 patients declared the pain intensity for 3 points, and the strongest felt pain (8 points) indicated 1 patient. While in the control group 1 patient declared no pain at all, the most common pain intensity, 6 points, was declared by 6 patients, the most severe pain (8 points) indicated 1 patient (Fig. 4a, Fig. 4b).

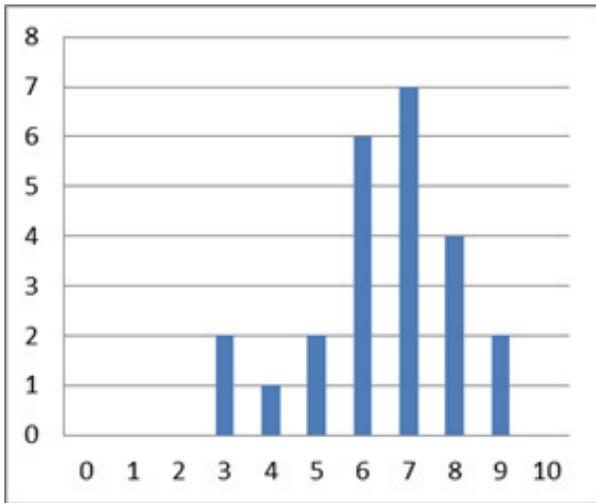


Fig. 3a. Assessment of pain according to the VAS scale before the treatment – study group

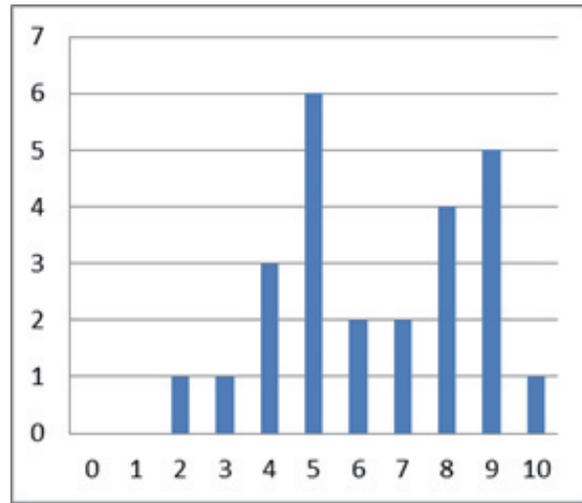


Fig. 3b. Assessment of pain according to the VAS scale before the treatment – control group

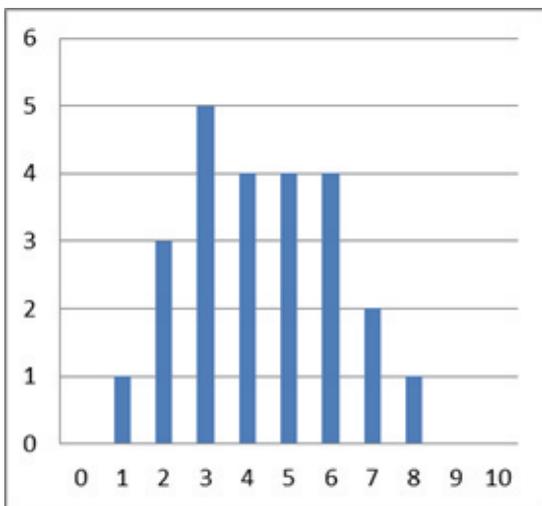


Fig. 4a. Assessment of pain according to the VAS scale after the treatment – study group

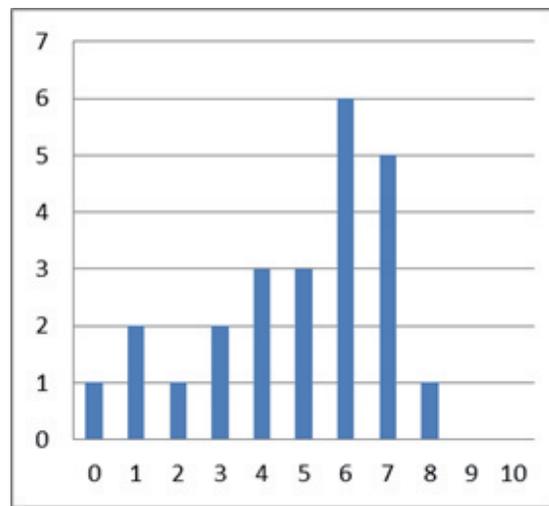


Fig. 4b. Assessment of pain according to the VAS scale after the treatment – control group

In the gait stereotype assessment according to Perry, before the Spa treatment, in the study group 8% of the patients had the normal gait, the majority of 21% of the patients presented problem in the active phase of gait - Initial Swing. In the control group 4% of the examined had the normal gait, 24% had problems in the active phase of Initial Swing (Fig. 5a, Fig. 5b) In the gait stereotype assessment according to Perry, after the Spa treatment, in the study group 29% of the patients had the normal gait, the largest group of 17% of the patients presented problem in the phases of gait - Initial Swing and Mid Swing. In the control group 44% of the examined had the normal gait, 16% had problems in the active phase of Initial Swing (Fig. 6a, Fig. 6b)

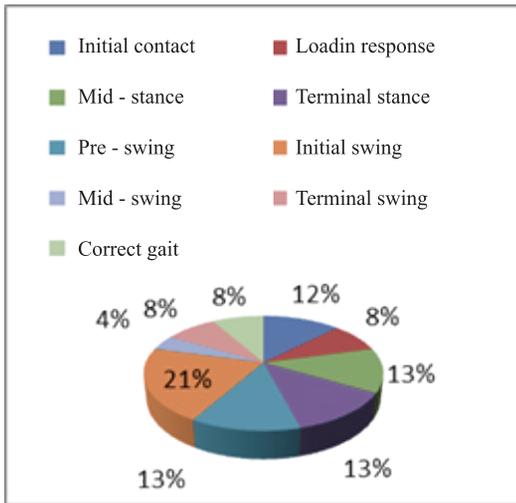


Fig. 5a. Assessment of gait according to Perry before the treatment – study group

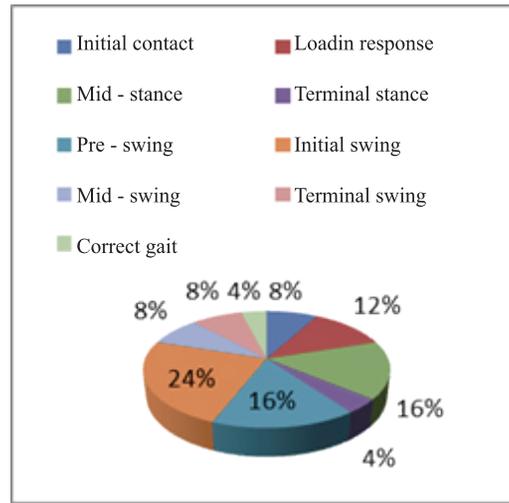


Fig. 5b. Assessment of gait according to Perry before the treatment – control group

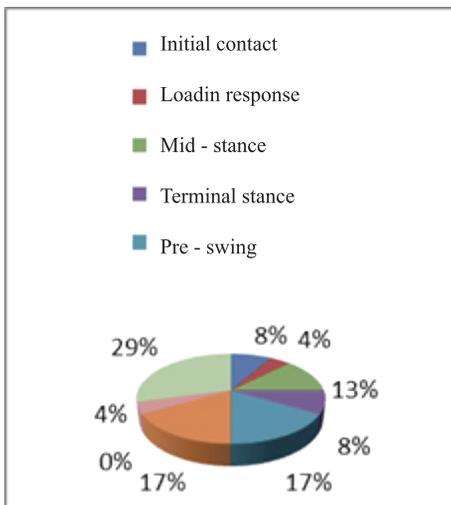


Fig. 6a. Assessment of gait according to Perry after the treatment – study group

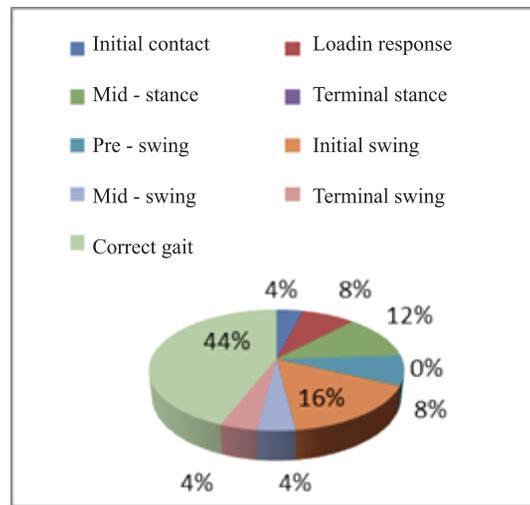


Fig. 6b. Assessment of gait according to Perry after the treatment – control group

The Linder 2 test results have shown, that after the Spa treatment procedures, the number of patients with the negative test results have increased. In the study group it has been from 12 to 16 patients, and in the control group from 15 to 20 patients (Fig.7).

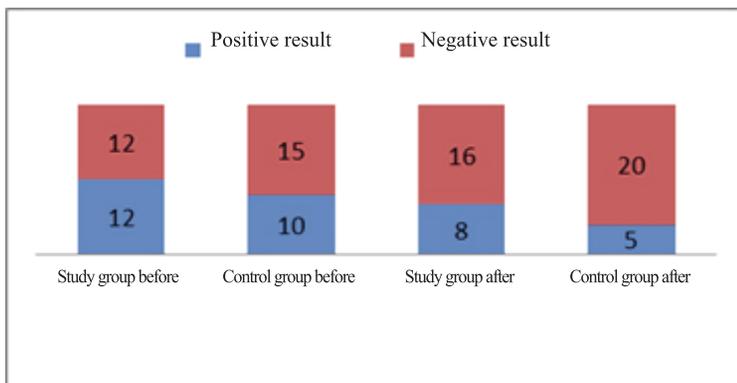


Fig.7. Linder Test 2 - the results before and after the treatment for each of the groups

The results of the abdominal compression test have shown the significant dominance of the negative results, in both the study and the control groups (Fig. 8).

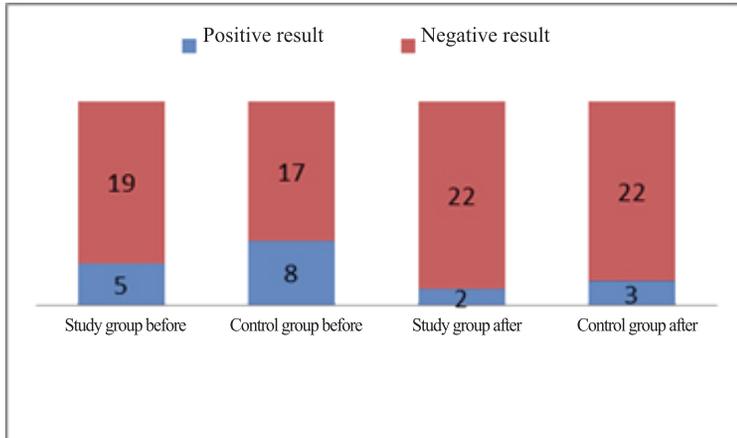


Fig. 8. Abdominal compression test, the results before and after the treatment for each of the groups

The results of the Patrick Faber test have shown the negative results, after the Spa treatment, in both, the study and the control group. In the study group the number of patients with the negative results has increased from 5 to 13, in the control group from 8 to 16 (Fig. 9).

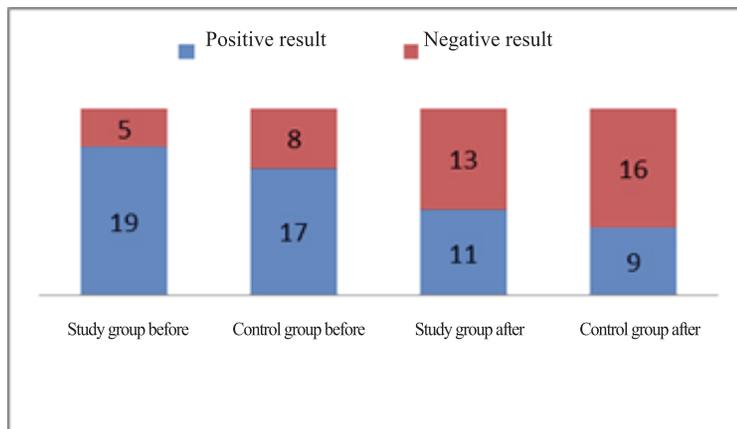


Fig. 9. Patrick Faber test, the results before and after the treatment for each of the groups

The results of the SLR test have shown the negative results, after the Spa treatment, in both, the study and the control group. In the study group the number of patients with the negative results has increased from 6 to 14, in the control group from 11 to 19 (Fig. 10).

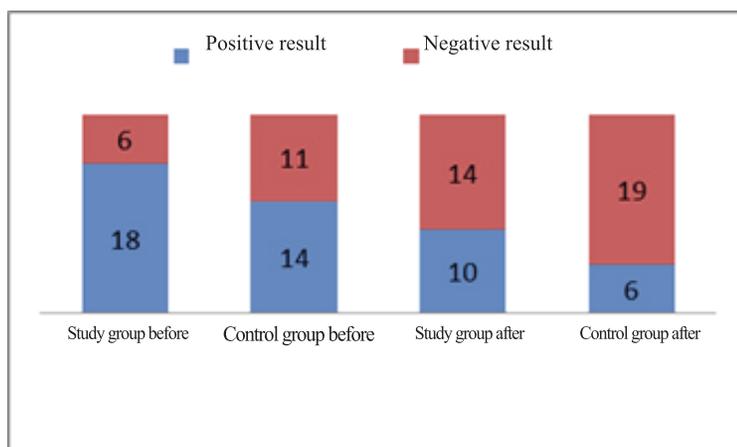


Fig. 10. SLR test, the results before and after the treatment for each of the groups

Discussion

In terms of the patient disability, the osteoarthritis takes up the leading position among the the diseases of civilization. The degenerative-distortion changes of the hip joint impair not only the functioning of the joint itself, but also affect the overall health of the patient, disturbing and restricting his/her social, family and professional life and the physical activity [1, 2, 3]. Research carried out by Iwaniszczuk A. et al., on a group of 30 patients with the osteoarthritis of the hip joint, during the 23 days of a rehabilitation period, have shown, that the procedures leading to the improved physical condition have a very large impact on the enhancement and progress of the the range of movement of the affected hip joints. The applied treatments, i.e. underwater massages, iontophoresis, UD, cryotherapy, laser therapy, low frequency magnetic field and the exercises in UGUL, contributed to the improvement of the quality of gait in 33% of the examined patients [4]. Lisiński et al., conducted a study on a group of 60 patients with the hip joints osteoarthritis, during the 21 days rehabilitation period. The average age of the study group has been 62.8 years. All the patients have been subjected to the kinezytherapy treatment (weight-relieving exercises in UGUL). The total time of one therapy session has been 60 minutes. In addition, the patients had undergone the physiotherapy treatment. These treatments have been as follows: local cryotherapy, pulsed high-frequency electromagnetic field, laser therapy, magnet therapy. The study has shown, that there has been an improvement in the ease of the moves in conjunction with combined with the decreased frequency and intensity of pain [5]. According to L. Szczepanski, who did a review of the research on the hip joint osteoarthritis, the therapy with move does not bring an improvement of anatomic status of the articular cartilage. The marked reduction of pain and the improvement of the joint functioning may be achieved by applying some physiotherapy techniques, i.e. thermal treatments, TENS and acupuncture. The beneficial effect of these procedures is that they do alleviate pain. The use of the cryotherapy largely reduces the pain sensation, while improving the joint moveability and facilitating the kinesiotherapy treatment. Still, the 23 studies published in the years 2002-2006 show, that the better treatment results may be achieved with the application of the peloid wraps. Similarly is with the laser therapy, where 5 out of 8 tests proves its pain killer efficiency. Analysis of the results of the 293 studies on the ultrasounds application has not highlighted their significant efficacy [6]. Our studies do not confirm the lack of effectiveness of the kinezytherapy. In the control group, in which we have combined the physiotherapy and kinezytherapy treatments, the final rehabilitation results have been better than in the study group, where the patients have been treated with the physical therapy only. Ciejka E. et al., conducted a study on a group of 129 patients with the productive-degenerative disorders of the peripheral joints and spine. Each of the patients has been subjected, on average, to

5 different physiotherapy treatments, and the appropriately selected kinezytherapy exercises have been applied. The effectiveness has been evaluated on the basis of the pain assessment results, physical fitness, moveability, and locomotion ability in patients before the treatment and after the series of procedures. Overall, in 66% of the patients who have undergone these procedures, a significant improvement of their general health condition has been noted (7). Results of the studies conducted by Tyborowicz M. show, that the weight-relieving exercises, during the various stages of the hip joint osteoarthritis have impact on the improved joint movability and on reduction of the pain intensity [8]. According to J. Pasek et al., the application of cryotherapy, both local and general, proves very effective as part of the comprehensive rehabilitation program. Properly applied, the cryotherapy does not cause any complications, and constitute an addition to the basic treatment [9]. Taradaj J., when summarizing the results of the study assessing the suitability of the electrotherapy for the treatment of the hip joint osteoarthritis states, that the most effective electrotherapy techniques for the degenerative joint diseases, are the TENS and the iontophoresis [10].

Conclusions

1. Physiotherapy has an impact on increasing the hip joint range of motion, in all directions, particularly in the flexion and abduction movements.
2. The rehabilitation procedure improve the gait stereotype in patients with the osteoarthritis of the hip joint.
3. The Spa rehabilitation therapy reduces the risk of falling down in patients with degenerative changes in the hip joints.

Adres do korespondencji / Corresponding author



prof. dr hab. n. med. Zbigniew Śliwiński

59-900 Zgorzelec, ul. Św. Jana 26E

emai: dr_sliwinski@post.pl

Piśmiennictwo/ References

1. Andruszkiewicz A., Wróbel B., Marzec A., Kocięcka A. Strategia radzenia sobie z bólem u pacjentów ze zmianami zwyrodnieniowymi stawu biodrowego. *Problemy pielęgniarstwa* 2008;16 (3):237-240.
2. Topolski A., Szczepański L. Ograniczenie ruchomości stawów biodrowych u osób w wieku 50-70 lat. *Reumatologia* 2010;48,6:366-371.
3. Biegański P., Polewska E. The hip joint Osteoarthritis - patient and functional problems. *Journal of Education, Health and Sport*. 2015;5(8):47-54. DOI 10.5281/zenodo.22712.
4. Iwaniszczuk A., Majchrowska – Kaliś A., Kuliński W. Analiza postępowania fizykalnego w chorobie zwyrodnieniowej stawów biodrowych. *Kwartalnik Ortopedyczny* 2011; 2: 108 – 121.
5. Lisiński P., Tomaszewska M., Samborski W. Wybrane metody fizjoterapeutyczne w leczeniu zmian zwyrodnieniowych stawu biodrowego. *Fizjoterapia Polska*, 2006; 1(4); 45-46.
6. Szczepański L., Przegląd ocen metod leczenia zachowawczego choroby zwyrodnieniowej stawów. *Postępy Nauk Medycznych* 2011;2:27-33
7. Ciejka E., Wójtowicz K. Ocena skuteczności stosowanych zabiegów fizjoterapeutycznych w leczeniu choroby zwyrodnieniowo – wytwórczej stawów obwodowych i kręgosłupa. *Balneologia Polska* 2009; 53(3): 189 – 193.
8. Tyborowicz M. Wpływ ćwiczeń czynnych w odciążeniu na zakres ruchu i odczuwanie bólu. *Rehabilitacja w praktyce* 2009; 1: 16.
9. Pasek J., Pasek T., Sieroń A. Krioterapia miejscowa i ogólnoustrojowa u pacjentów ze zmianami zwyrodnieniowymi stawów. *Rehabilitacja w praktyce*, 2009;2: 32.