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COMPARATIVE ANALYSIS OF SEPARATE RESULTS OF ARTHROPLASTY FOR ASEPTIC NECROSIS OF THE FEMORAL HEAD

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Abstract. Objective: Improving the results of arthroplasty in aseptic necrosis of the femoral head (ANFH). Materials and Methods: We studied the quality of life of patients according to the scale developed by us; we examined patients before and after treatment in 172 patients. The patients were of working age from 20 to 65 years old. In this system, 6 clinical parameters were used on a 5-point scale, the clinical result was assessed by the analysis of the sum of points. Results: Analysis of the results of surgical treatment of patients with ANFH showed the prevalence of the proportion of good results in patients of the main group in 45 (82.6%) cases versus the control group - 40 (73%) and a decrease in unsatisfactory results to 1 (1%) case in patients of the main group against the control - 2 (3%).

Keywords: separate results, endoprosthetics, aseptic necrosis of the femoral head.

Introduction. Aseptic necrosis of the femoral head is one of the most pressing problems of modern orthopedics, which leads to severe pain syndromes, limited joint function, significant economic costs and increased mortality [1, 2, 8, 9, 10, 12]. Clinical and radiological signs of degenerative-dystrophic diseases of large joints are found in 55 - 65% of cases in people over 60 years old and in about 80% of people over 75 years old. Many authors have proven that early diagnosis, complex and specific treatment of ANFH, depending on the stage of the disease, are the key to successful treatment and reduce complications [3, 4, 5, 6, 7, 11].

As studies of recent years show, ANFH is a poli-etiological disease, with a large role playing, general and local factors of them: trauma, alcohol intoxication and those taking steroid drug therapy [13, 15, 16, 17, 18, 19, 21].

The authors describe in patients who have suffered fractures of the femoral neck and traumatic dislocation of the femoral head in the near and long-term, ANFH

develops. These patients have obstruction of the blood vessels feeding the femoral head, which leads to degenerative-dystrophic changes characteristic of ANFH [14, 20, 22, 23, 24, 25, 26].

Materials and methods. We studied the quality of life of patients according to the scale developed by us; we examined patients before and after treatment in 172 patients. The patients were of working age from 20 to 65 years old. In this system, 6 clinical parameters were used on a 5-point scale, the clinical result was assessed by the analysis of the sum of points.

Results. According to our assessment of the quality of life, good results were in the range from 15 to 22 points, satisfactory - from 8 to 14; unsatisfactory was assessed by the sum from 0 to 7 points. Summarizing the scores obtained, we evaluated the effectiveness of the treatment and presented them as a percentage, which reflected the difference between the post-treatment increase in the score. We took the initial state of the patient as 100%. After surgery, an increase in the score of up to 30% of the initial patient scores before surgery was noted (Table 1).

Table 1

Criteria for assessing the quality of life of patients with ANFH

Pain	Function	Emotional perception	Necessity of means of rehabilitation and support, (orthoses, cane)	Ability to walk / perform an action with the upper limb	Gait disorder / ability to lift and carry weights	Points
No	no restrictions	enthusiasm	No	no restrictions	Norm	5
transient weak	transient weak	transient weak	transient weak	transient weak	transient weak	4
weak	restriction in precise movements	Satisfaction	brace	limited	minimal cosmetic disturbances	3
transient	transient	transient	transient	transient	transient	2

moderate	moderate	moderate	moderate	moderate	moderate	
moderate	partial incapacity	acceptable	one cane or crutch	a housewife	maximum cosmetic, minimum physical difficulties	1
significant	complete inability	unacceptable	two canes or crutches	need for outside help	absent	0

To study the results of treatment, comparative immediate results of treatment were carried out in patients with ANFH before and after 1 month. after surgical treatment. Comparative results of treatment in patients with ANFH before and 1 month after surgical treatment (table 2).

Table 2

Criteria for assessing the quality of life of patients with ANFH

Criteria for evaluation	Before treatment (n = 110) patients		After treatment, one month later (n = 110) patients	
	The main	Control	The main	Control
Pain	1	1,0	2,5	2,0
Function	1,5	1,5	2,5	2,0
Emotional perception	1,5	1	1,5	1,5
The need for rehabilitation and support (orthoses, cane)	1,0	1,0	2,5	2,5
The ability to walk / perform an action with the lower limb	1,5	1,5	2,5	2,0
Gait disorder / ability to lift and carry weights	1,5	1	2,5	2
Points total	8	7	14	12

From table 2 it can be seen that before the operation, that in ANFH patients before the operation, pain was noted - in the main group, 1 points, in the control group, 1 points. After the operation, one month later, it became 2.5 points in the main and 2 points in the control.

Before the operation, the patients had impaired mobility function of varying severity after the operation, the dysfunction recovered before the operation in the main group, 1.5 points and the control group were also 1.5 points. After the operation, one month later, it became 2.5 points in the main group and 2 points in the control group.

Before the operation, the patients had emotional perception in the main group, it was 1.5 and the control group was also 1.0 points. After the operation, one month later, it became 1.5 points in the main group and 1.5 points in the control group. Before the operation, the patients had a need for means of rehabilitation and support, (orthoses, canes) in the main group, 1.5 points were noted, and in the control group, they were also 1.0 points. After the operation, one month later, it became 2.5 points in the main group and 2.5 points in the control group. Before the operation, the patients had an insignificant ability to walk, to perform the action with the upper limb before the operation in the main group, 1.5 points were noted and in the control group, also 1.5 points. After the operation, one month later, it became 2.5 points in the main group and 2 points in the control group. Before the operation in patients, the ability to lift and carry weights before the operation in the main group was 1.5 and the control group was also 1.0 points. After the operation, one month later, it became 2.5 points in the main group and 2 points in the control group. The average score before treatment in the main group was 8, in the control group. After the treatment, it became the main group of 14, and in the control group - 12 points. The presence of persistent pain was the main indication for surgery in both groups; after surgical treatment, pain decreased most in the main group compared to the control group, which shows a good efficacy of surgical treatment of hip joint.

We present the comparative results of treatment in patients with ANFH after treatment at 3.6 months and one, two years (table 3).

Table 3

Comparative results of treatment in patients with ANFH after surgical treatment

Criteria for evaluation	3 months		6 months		1 year		2 year	
	The main	Cont rol	The main	Cont rol	The main	Cont rol	The main	Cont rol
Pain	3	2,5	3,5	3	4	3	4,0	4,0
Function	3	2,5	4	3,0	4,0	3	4	4,0
Emotional perception	3	3	3	3	3	4,0	4	3
The need for rehabilitation and support (orthoses, cane)	3,0	3	3,5	3,0	4	4	4	4
The ability to walk / perform an action with the lower limb	2,5	2	3	3	3	2,5	3,0	3,0
Gait disorder / ability to lift and carry weights	2,5	2	3	2,0	3	2,5	3,0	3,0
Points total	17	15	20	17	21	19	22	21

Table 3 shows that in patients after surgery, pain was noted in the main group: after 3 months - 3, 6 months - 3.5, 1 year - 4 and 2 years - 4 points. In the control group: after 3 months - 2.5, 6 months - 3.0, 1 year - 3 and 2 years - 4 points.

After the operation, dysfunction was observed in the main group: after 3 months - 3, 6 months - 3.5, 1 year - 4 and 2 years - 4 points. In the control group: after 3 months - 2.5, 6 months - 3.0, 1 year - 3 and 2 years - 4 points.

After the operation, the patients had emotional perception in the main group: after 3 months - 3, 6 months - 3.0, 1 year - 3 and 2 years - 4 points. In the control group: after 3 months - 3.0, 6 months - 3.0, 1 year - 4 and 2 years - 3 points.

After the operation, the patients noted the need for rehabilitation means and support (orthoses, canes) in the main group: after 3 months - 3.6 months - 3.5, 1 year - 4 and 2 years - 4 points. In the control group: after 3 months - 3.0, 6 months - 3.0, 1 year - 4 and 2 years - 4 points.

After the operation, the patients had the ability to walk, perform an action with the upper limb, emotional perception in the main group: after 3 months - 2.5, 6 months - 3.0, 1 year - 3 and 2 years - 3 points. In the control group: after 3 months - 2.0, 6 months - 3.0, 1 year - 2.5 and 2 years - 3 points.

After the operation, the patients had a gait disorder, the ability to lift and carry weights in the main group: after 3 months - 2.5, 6 months - 3.0, 1 year - 3 and 2 years - 3 points. In the control group: after 3 months - 2.0, 6 months - 2.0, 1 year - 2.5 and 2 years - 3 points.

The average score before treatment in the main group: after 3 months - 17, 6 months - 20.0, 1 year - 21 and 2 years - 22 points. In the control group: after 3 months - 15.0, 6 months - 17, 1 year - 19 and 2 years - 21 points. From these data, we can say that in patients in the postoperative period after 6 and 12 months, there is an improvement in the results of treatment: a decrease in pain, deformity and an increase in the amplitude of joint movement and an improvement in limb function (Table 4).

Table 4

Results according to the scale developed by us

Scale score	Основная группа	Контрольная группа	Количество больных
Good	45 (82,6%)	40 (73%)	85 (77%)
Satisfactory	9 (16,4%)	13 (24%)	22 (20%)
Unsatisfactory	1 (1%)	2 (3%)	3 (3%)
Total	55 (100%)	55 (100%)	110 (100%)

Table 4 shows that in patients with ANFH, good results were obtained in the main group in 45 (82.6%), in the control group in 40 (73%). Satisfactory in the main group in 9 (16.4%), in the control group in 13 (24%). Unsatisfactory in the main

group in 1 (1%), in the control group in 2 (3%). Compared to the main and control groups, the results of treatment after arthroplasty in the main group are good results 82.6%, in the control group 73%, these data show the effectiveness of surgical treatment in the main group.

Conclusion. The use of the developed method of hip arthroplasty in ANFH against the background of severe osteoporosis promoted good integration of the prosthesis with the bone, leading to an improvement in the functional capacity of the joint and lengthening the life of the endoprosthesis.

Analysis of the results of surgical treatment of patients with ANFH showed the prevalence of the proportion of good results in patients of the main group in 45 (82.6%) cases versus the control group - 40 (73%) and a decrease in unsatisfactory results to 1 (1%) case in patients of the main group against the control - 2 (3%).

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