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The Criteria for Assessment of Operative Treatment's Outcome of Dysplastic Coxarthrosis with Endoprothesis of Hip Joint

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Abstract

On the basis of results of Endoprothesis in 131 patients, in age from 22 to 78 years, the criteria for assessment of results of treatment are defined, the system is worked out, which makes possible to estimate efficiency of treatment for each patient. The presence of a pain, ability to walk and work has the most diagnostic value.

Key words: *endoprothesis, coxarthrosis, diagnostic criteria*

Introduction

Despite, the certain history of Endoprothesis, it is still doubtful, which findings can be carried as a criteria for treatment efficiency with Endoprothesis of hip joint.

By [2] the clinical and no rentgenological findings must be employed as a landmark for assessment of treatment results. By Matiss [1] the rentgenological, as a clinical finding are given for assessment, but they fix only condition of the patient and do not reflect the results of surgical treatment. Over this, as it is known, the treatment efficiency depends on the constitutional characteristics of patient, possibilities of social rehabilitation, which is different for different populations.

The aim of our study is determination of the criteria for assessment of the results of surgical treatment with Endoprothesis of hip joint.

Materials and Methods

The subjects of investigation were 131 patients, in age from 22 to 78 years, with dysplastic coxarthrosis from orthopedic clinic "Syntezi". The operations of arthroprothesis by "Biomed" - were carried out for these patients. The assessment of treatment results was done one year later after the operation. The methods of investigation were clinical, rentgenological, clinical-laboratory.

The data of patients were studied before and after operation by the following factors: pain, character of pain, limp, character of limp, possibilities of movement, distance of walking, sitting, self-service, movement in joint, ability to work, in all 61 factors. The analysis of the material was done by the multi-dimensional-statistical methods [3] (alternative and discriminative).

Results

The study shows, that one year later after the operation no one patient had following factors: disability, walk on crutches, only at home, third stage of degenerative-dystrophic process. The frequency of other data is presented in *Tab.1.*

N	Names of factors	RDF	Diagnostic value
1.	Pain on the loading	5,6	8,1
2.	Continuous pain	16,33	15,6
3.	Self-service	3,5	4.0
4.	Carries out easy work	6,21	6,3
5.	Unimportant limp	-5,07	5,6
6.	Intense limb	2,79	3,5
7.	Walking without the stick	-4,52	6,2
8.	With to sticks	4.52	6,7
9.	Up to 200 meters	2.29	2,3
10.	To put on socks-easy	-5,37	7.0
11.	With difficulty	-4,95	7,7
12.	To sit on the any chair – 1h.	-1,69	2,6
13.	On the high chair 0,5h	0,89	1,4
14.	Cannot 0,5h.	1,98	2,6
15.	Flexion – 0-45	2,42	2,7
16.	Flexion – 90-110	-3,5	4,3
17.	Abduction – 20-60	1,84	2,8
18.	Adduction – 0-15	-2,99	4,3
19.	Adduction – 15-20	-5,07	7,2
20.	Rotation on the outside – 0-15	-7,1	10,8
21.	Rotation on the outside – 15-60	-4,32	6,5
22.	Character of pain – II stage	-1,5	1,8
23.	Character of limp – I stage	2,4	3,3
24.	Limitation of function – I stage	2	2
25.	Limitation of function – III stage	1,79	1,79

Tab.1 *The diagnostic values and coefficients of rectilinear discriminative function of criteria for assessment of treatment efficiency.*

N	Rank of intervals	Negative (%)	Positive (%)
I	II	III	IV
1	(-7,1 -6,5)	0	100
2	(-6,6 -6,2)	0.1	99.9
3	(-6,1 -6,5)	0.25	99.75
4	(-5,6 -5,2)	0.5	99.5
5	(-5,1 -5,5)	0.8	99.2
6	(-4,6 -4,2)	1.35	98.65
7	(-4,1 -3,5)	2.25	97.75
8	(-3,6 -3,2)	3.65	96.35
9	(-3,1 -2,5)	5.82	94.18
10	(-2,6 -2,2)	9.3	90.7
11	(-2,1 -1,5)	14.45	85.55
12	(-1,6 -1,2)	21.7	89.3
13	(-1,1 -0,7)	31.25	69,75
14	(-0,6 -0.2)	42.7	57,3
15	(-0.1 0.3)	49.1	50,9
16	0.4	49.3	51,7
17	(0.5 0.9)	50.4	49,6
18	1,0 1,4	67	33
19	1.5 1,9	76.9	23.1
20	2 2.4	84.6	15.4
21	2.5 2.9	90	10
22	3 3.4	93.65	6,35
23	3.5 3.9	96.1	3,9
24	4 4.4	97.95	2,05
25	4.5 4.9	99	1.0
26	5 5.4	99.45	0.55
27	5.5 5.9	99.65	0.35
28	≥6	100	0

Tab.2 *Table of intervals.*

On the first stage of investigation by comparing the findings, the factors, showing reliable difference between the conditions of patients in preoperative and postoperative periods, were defined. The contributions of each factor in the assessment of treatment efficiency were defined after.

The results of discriminative analysis shows, that the rectilinear discriminative function is significant F=49,03>F (25; 255)=1,7

The most diagnostic value for the assessment of treatment efficiency has: presence of a pain, ability to walk and work, nears this, unimportant limp cannot be a sign of a bad postoperative result.

Regarding the movement in joint the rotation on the outside and adduction is most common.

On the basis of our investigation we have working out the system, which is helpful for assessment of efficiency of operative treatment for each patients by employing the rectilinear discriminative function.

The diagnostically valued factors are determined for the assessment of results of treatment, corresponding them coefficients of rectilinear discriminative function are found in the table N1, are added up, after the sum is put into the corresponding interval in the second column of table N2, along which the quantitative assessment (in percent) of results of operation is given. If the number of points is not more than 50 percent, the result of treatment is unsatisfactory, if it is situated in the interval 50-70 percent - the result is satisfactory, but if the number of points is more than 70 percent, the result of treatment is good.

The system, suggested by us can be employed for the assessment of results of the operative treatment of dysplastic coxarthrosis in patients with endoprothesis of hip joint.

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Критерии оценки результатов лечения диспластического коксартроза при эндопротезировании тазобедренного сустава

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Р Е З Ю М Е

На основании исследования 131 больного с коксартрозом (возраст больных от 22 до 78) определены критерии оценки результатов операционного лечения при эндопротезировании тазобедренного сустава. Расчитана диагностическая значимость каждого фактора, создана система, которая может быть использована для оценки результатов лечения коксартроза эндопртезорованием тезобедренного сустава.

Ключевые слова: *эндопротезирование, коксартроз, критерии оценки, диагностическая значимость*