Bipolar Arthroplasty For Hip Fractures

Asilova Saodat Ubayevna[1], Kuziev Golb Alisherovich[2], Mirzarakhimov Khusan, Abduganis Son[3], Sadiyev Bobur Muzaffars Son[4]

[1]Dr. med. Sciences, prof. Chairs traumatology and orthopedics, Tashkent Medical Academy, Republic of Uzbekistan, Tashkent
[2]Head of the Department of the Republican Clinical Hospital No. 1 in department of traumatology №2
[3]coals master 1 course Tashkent Medical Academy, Republic of Uzbekistan, Tashkent Department of Traumatology and Orthopedics MFSwith NS
[4]coals master 1 course Tashkent Medical Academy, Republic of Uzbekistan, Tashkent Department of Traumatology and Orthopedics MFSwith NS

Annotation: Currently, it is an urgent problem in orthopedics and traumatology. Bipolar arthroplasty for hip fractures has been developed in elderly patients. We studied the results bipolar arthroplasty for fractures of the femoral neck in the area of the hip joint in 32 patients. in order to obtain a tight "equatorial" or "frame" fit of the prosthesis, the acetabulum was expanded to 1 mm larger than the maximum size of the expander used to select the prosthesis. When patients have osteoporosis or have a wide medullary canal, then cement in the femur has always been used. After the operation, all patients underwent research to check pain, mobility and movement in the hip joint, as well as to check for loosening. The results of treatment were studied in 29 patients. Good and excellent results were obtained after 3 months in 23 (79.3%) patients, satisfactory in 4 (13.8%) and unsatisfactory in 2 (6.9%) patients. After 6 months. became good and excellent results were in 25 (86.2%) and 3 satisfactory (10.3%) and unsatisfactory in 1 (3.5%) patient. After 9 months. good and excellent results were observed in 27 (96.5%) and satisfactory in 1 (3.5%) patients. The average value after 3 months 3.2 - 2.0 points, after 6 months 2.6 - 1.2 points, after 9 months 1.3 - 1.0 points .. The advantage of the operation is the operation prostate, the operation time is short, hip dislocation low cost is not observed.

Keywords: bipolar hip arthroplasty; osteoporosis, hip fracture, old age.

1. RELEVANCE

Currently, bipolar arthroplasty for fractures of the femoral neck is an urgent problem in orthopedics and traumatology. Fractures of the femoral neck are often found in the elderly. According to the authors (1, 2, 18, 20), after the imposition of a bipolar prosthesis in the area of the hip joint, shear stress and the frequency of protrusion of the acetabulum, as well as loosening of the trunk, decrease. [5,6, 19].

The authors (11,13,15) described to obtain a tight "equatorial" or "rim" fit of the prosthesis, the acetabulum was expanded to 1 mm larger than the maximum size of the used expander for the selection of the prosthesis. When patients have osteoporosis or have a wide medullary canal, then cement in the femur has always been used.

The authors (17,22,24) indicate that the advantage of the bipolar design is the prostate operation, the operation time is short, greater stability and a decrease in the likelihood of dislocation as a result of the increased range of motion (14,18.)

and low cost.

Author. Bateman [1] in 1974 wrote the use of a bipolar implant for hip reconstruction, used mainly for fresh fractures in old age, aseptic necrosis and nonunions of the femoral neck. The researcher expanded the applications of the bipolar prosthesis to include conditions affecting the acetabulum, such as rheumatoid arthritis, osteoarthritis and avascular necrosis of the femoral head. He made a number of additional contributions based mainly on the use of the implant in post-traumatic conditions and aseptic necrosis of the femoral head.

The aim of the study is: To improve the results of treatment for hip fractures by improving the surgical treatment and rehabilitation of patients.

2. MATERIAL AND METHODS

We observed 32 patients from 2018 to 2020 with hip fractures in the Department of Traumatology No. 2 of the RCH No. 1. At the age of 70 - 75 years in 5 patients, 76-80 years old in 21 patients and 81 and more years in 6. patients ... The average age at which the surgery was performed was 78 years. 21 of them were women, 11 were men. Operation was performed with cements in 5 patients and without cement in 27 patients. All patients underwent pelvic radiography with both hips - anteroposterior view in internal rotation and lateral projection of the affected thigh. All patients underwent preliminary examination, i.e., a clinical assessment of pain was carried out before and after surgery for pain, mobility, walking, loosening, drooping of the protrusion and acetabulum, and there was also a correspondence of the length of the legs. After preliminary preparation of the patients, the operations of placing the endoprosthesis with the Korentec prosthesis were performed.During the operation, the fixation of the prosthesis in some patients was additionally reinforced with bone cement, when the patients had osteoporosis or the femoral canal was wide. When patients had a narrow femoral canal, then we used an uncemented prosthesis. Radiographically checked the movement of the inner head in relation to the outer cup of the prosthesis.

Post-operative care: When the patient is supine, a pillow is placed between the legs to support leg abduction. A long knee brace was placed between the legs when the patients were moved to the ward, and this device was used for a period of 7 days to 2 weeks.

After the operation, the patients began to walk 2 days later, and from the 3rd day they began active development with the help of an arthro bridge to develop the hip joint. On the 3rd day, the patients were forced to walk with partial load using a walker. On the 15th day after the operation, all the stitches were removed and full weight transfer was allowed with walking. On the 10th or 11th day, patients were discharged home with a recommendation that they should not sit cross-legged and squat, or should have used toilet chair. The patients were regularly examined after 1 month, 3 months, 6 months and after 1 and 3 years. The median follow-up was 3.50 years (range 2 to 4.5 years).

We studied the immediate results of treatment in all patients, long-term results in 32 (100%) patients. During the initial assessment of the effectiveness of treatment, in addition to radiographs for a fracture of the femoral neck, a clinical examination of patients after surgery was performed. The results of surgical treatment were studied, the criteria for evaluating the results of treatment were evaluated on the basis of the proposed 5 point scale of the proposed

computer PROGRAM No. DGU 09123. In this case, the assessment was carried out with an average value of points for 3 indicators to determine the improvement of clinical manifestations where:

An excellent result of 0-1.3 points is marked by the absence of pain, complete recovery of mobility and walking.

A good result is 1.4-2.9 points, while there is slight pain, with a slight limitation of mobility and walking.

Satisfactory score 3.0-4.2 points disturbing pain with visible limitation of mobility and walking.

Unsatisfactory result 4.3-5 severe pain, with visible limitation of mobility and not walking.

Assessment of the severity of pain syndrome according to the scale developed by us in patients with hip fractures before and after surgery.

Table 1.

The nature of the pain	Before treatment	After treatment			Score value
		after 3 months	after 6 months	12 months	
No pain	0	21	26	31	0
Tolerable pain (one)	2	6	4	1	1
Disturbing pain (2)	3	5	2	0	2
Strong pain (3)	18	0	0	0	3
Terrible pain (4)	5	0	0	0	4
Unbearable pain (5)	3	0	0	0	5
Total Average score	4,2	2,8	1,9	0,5	

The table shows that before treatment, 18 patients had severe pain, 5 patients had terrible pain and 3 patients had unbearable pain. This character of pain disappeared after 3 months. ... The mean score before surgery was 4.2; after surgery it became 2.8.

After treatment after 6 months. pain was absent in 26 patients, tolerable pain was in 6 patients and disturbing in 5 patients. The mean score was 1.9. After treatment 12 months later. pain was absent in 31 patients, tolerable pain was in 1 patient. The average score became 0.5. These indicators confirm the effectiveness of bipolar surgical treatment in elderly patients.

We have studied the degree of mobility of the hip joint in the observed patients (Table 2).

Table 2 Preoperative hip mobility

Degree of mobility	The degree of mobility of the hip joint in points					
	Before treatment	After treatment			Total	Normative value of points
		After 3 months.	After 6 months.	After 12 months.		
flexion: more than 90 degrees, abduction: up to 30 degrees	0	21-	26	29		0
flexion: 80 - 90 degrees, abduction: less than 15 degrees		5	4	2		1,3
flexion: 60 - 80 degrees the patient can reach the foot		4	2	1		1.4
flexion: 40 - 60 degrees	2	2				2,9
flexion less than 40 degrees position	6					3
no movement, slight deformation	24					4,2
ankylosis in a vicious position						5
Total						
Average score	4,5	2,76	1,4	0,9		

It can be seen from the table when assessing the degree of joint mobility before surgery, patients did not have ankylosis in a vicious position; before treatment, the majority of 24 patients had no movement and slight deformity. After treatment, mobility gradually recovered after 3 months. in 21 patients after 6 months. in -26 patients and after 12 months. in 29 patients, flexion: more than 90 degrees, abduction: up to 30 degrees

The mean score before treatment was 4.5 points. After treatment, after 3 months. 2.76, the score became after 6 months. 1.4 and after 12 months. 0.9. These indicators show the effectiveness of bipolar surgical treatment in elderly patients.

The severity of hip fractures is also reflected by walking. As can be seen from Table 3, out of 32 (100%) observed 26 patients before treatment could not walk and only 6 patients walked with crutches and a rope (Table 3).

Table 3
Assessment of the state of walking in patients with hip fractures

Walking condition	Assessment of the state of walking in points					
		After treatment				Normative value of points
	Before treatment	after 3 months	after 6 months	after 9 months		
norm	0	23	28	29		0
no cane but slight limp		5	3	2		1,3
with a cane - can walk for a long time, for a short time - without a cane and limping		2	1	1		1,4
using one cane for less than 1 hour; difficult - without a cane		2				2,9
with canes only	1					3
only with crutches	5					4,2
can't walk	26					5
Total						-
Average score	**4.14**	**3.1**	**2,7**	**1,2**		-

After the operation, a significant improvement in walking was observed in patients approaching normal after 3 months. in 23 patients, after 6 months. in 28 patients and after 9 months. in 29 patients. The mean score before treatment was 4.14, after treatment after 3 months. 3.1, after 6 months. 2.7 and after 9 months. 1.2 points. These indicators indicate atraumaticity of the operation and faster recovery of mobility and walking of patients.

Long-term results were studied in 29 (91%) patients. (Table 4)

Table 4
Long-term bipolar hip arthroplasty

Assessment (score)	After 3 months (	After 6 months	After 9 months.
excellent (0 -1.3)	8 (27.6%)	8 (27.6%)	10 (38.4%)
Good (1.4-2.9)	15 (51.7%)	17 (58.6%)	17 (58.1%)
Satisfactory 3 - 4.2	4 (13.8%)	3 (10.3%)	1 (3.5%)
Unsatisfactory (4.3-5 points)	2 (6.9%)	1 (3.5%)	
Average 2.4-1.3	29 (100%) 3.2 - 2.0 points	29 (100%) 2.6-1.2 points	29 (100%) 1.3 - 1.0 points

The table shows good and excellent results were after 3 months in 23 (79.3%) and satisfactory in 4 (13.8%) and unsatisfactory in 2 (6.9%) patients. After 6 months. became good and excellent results were in 25 (86.2%) and 3 satisfactory (10.3%) and unsatisfactory in 1 (3.5%) patient. After 9 months. good and excellent results were observed in 27 (96.5%) and satisfactory in 1 (3.5%) patients. The average value after 3 months is 3.2 - 2.0 points, after 6 months - 2.6 - 1.2 points, after 9 months - 1.3 - 1.0 points.

We give examples of patients: V.S. 78 years old she entered our office on 09.09.2020. with a diagnosis: Closed fracture of the femoral neck on the right. On 11 September 2020, the operation was performed: Endoprosthetics of the hip joint with a bipolar prosthesis Korintek. Before the operation, she was unable to walk - 5 points, there was no movement and slight deformity of the hip joint on the right - 4 points, terrible pain - 4 points Average value - 4.5 points

After the operation, the pain became tolerable - 1 points, flexion of the hip joint - 80 degrees, abduction - 15 degrees - 1.3 points and walking without a cane, but there is a slight chromate - 1.3 points. The average value is 1.2 points. The patient has an excellent result after the operation. These indicators indicate the effectiveness of a bipolar prosthesis in elderly patients.

Thus, a simpler and more enjoyable approach was to use and evaluate bipolar hip arthroplasty for hip fracture. There is sufficient evidence to evaluate this procedure, which has been successful in older patients. The advantage of the operation is the prostate of the operation, the operation time is short, dislocation of the hip is not observed and the cost is low.

3. CONCLUSIONS

1. The advantage of bipolar arthroplasty for hip fracture is the operation of the prostate, the operation time is short, hip dislocation is not observed and the cost is low.

2. The mean score before treatment was 4.14, after treatment after 3 months. 3.1, after 6 months. 2.7 and after 9 months. 1.2 points. These indicators indicate the atraumatic nature of the operation and faster recovery of mobility and walking of patients.

3. Good and excellent results were in 3 months in 23 (79.3%) and satisfactory in 4 (13.8%) and unsatisfactory in 2 (6.9%) patients. After 6 months. became good and excellent results were in 25 (86.2%) and 3 satisfactory (10.3%) and unsatisfactory in 1 (3.5%) patient. After 9 months. good and excellent results were observed in 27 (96.5%) and satisfactory in 1 (3.5%) patients. The average value after 3 months is 3.2 - 2.0 points, after 6 months - 2.6 - 1.2 points, after 9 months - 1.3 - 1.0 points.

LITERATURE

[1]. Azizov M.Zh. Our experience of endoprosthetics for fractures and false joints of the femoral neck / M.Zh. Azizov, N.V. Stupin, F.M. Usmonov, A.R. Hoshimov et al. Traumatology and orthopedics in the modern spectrum: mater. VII Congress of Traumatologists - Orthopedists of Uzbekistan (5-6 Sept. 2008, Tashkent). - Tashkent, 2008. - P. 47-48

[2]. M. Zh. Azizov, FM Usmonov [et al.] Endoprosthetics of the hip joint in fractures and pseudarthrosis of the femoral neck / // Surgery of Uzbekistan. - Tashkent, 2011. - N1. - C. 3-7

[3]. Azizov M. Zh. Modern view of the treatment of fractures of the femoral neck in elderly and senile persons: scientific publication / M. Zh. Azizov, O. E. Valiev // Bulletin of emergency medicine: Scientific and practical journal / Association of doctors emergency medical care in Uzbekistan. - Tashkent: "Ozbekiston" publishing house. - 2019. - Volume 12 N 4. - P. 92-99

[4]. Brizhan LK Application of the method of determining the orthopedic age in the treatment of patients with a fracture of the femoral neck: scientific publication / LK Brizhan, BP Buryachenko [et al.] // Clinical medicine. - M., 2015 .-- Volume 93 N2. - P. 76

[5]. Baratov A.B. Treatment of femoral neck fractures in emergency traumatology / A.B. Baratov, A.R. Shukurullaev, M.B. Rakhmatov, Y. Kamolov, Zh. Yarlokobov // Endosurgical methods in traumatology and orthopedics: materials of the Republican scientific-practical conference (November 3, 2006, Bukhara). - Bukhara, 2006 .-- P. 41

[6]. Belyakin S.A. Influence of concomitant diseases on the choice of a method for treating a fracture of the femoral neck in elderly and senile victims: scientific publication.

[7]. Belyakin, S. N. Perekhodov, E. V. Peshekhonov, A. N. Ivashkin // Clinical Gerontology. - Moscow, 2011. - No. 3-4. - C. 13-17.

[8]. 8.Geroeva E. V. Prevention of recurrent fracture of the femoral neck: scientific publication / E. V. Geroeva; E. V. Gerieva // Issues of economics and management for health managers. - M., 2009 .-- N7. - C. 44-45

[9]. Gnetetsky S. F. Social significance and results of total hip arthroplasty in old age: scientific publication / S. F. Gnetetsky // Russian medical journal. - M., 2013 .-- N6. - S. 54-56.

[10]. Dursunov A.M. External fixation in the surgical treatment of femoral neck fractures / A.M.Dursunov. - T: YURIST-MEDIA MARKAZI, 2014 .-- 112 p.

[11]. Dudani BG, Azam SM, Madhukeshwar GV: Bipolar hemiarthroplasty for fractures of the neck of femur in the elderly, Ind J Orthop. 2004; 38: 12-15.

[12]. Zagorodny N.V. Compression method of osteosynthesis of femoral neck fractures: scientific publication / N.V. Zagorodny, E.A. Zharmukhambetov // Vestn. Grew up. University of Friendship of Peoples. - M., 2005. - No. 1. - S. 98-101.

[13]. Kavalsky G.M. Differentiated approach to the treatment of femoral neck fractures in elderly and senile patients: scientific publication / G.M. Kavalsky, L.L. Silin, S.V. Donchenko, V.V. Kostyukov // Medical assistance. - M., 2005. - No. 1. - C. 27-30. -

[14]. Kazakov S.K. Endoprosthetics for diseases and injuries of the hip joint with an assessment of the quality of life / S.K. Kazakov // Central Asian Medical Journal. - Bishkek, 2008. - No. 6. - C. 502-504
[15]. Kavalerskiy G. M [et al.] Hip arthroplasty in patients with pseudarthrosis of the femoral neck: scientific publication // Bulletin of traumatology and orthopedics named. N.N. Priorova. - M., 2016 .-- N1. - S. 21-26.
[16]. Klyuchevsky V.V. Endoprosthetics for femoral neck fractures: scientific publication / V.V. Klyuchevsky, S.I. Gilfanov, V.V. Danilyak, M.V. Belov et al. // Bulletin of Traumatology and Orthopedics. - Moscow, 2009. - No. 3. - C. 21-25
[17]. Lazarev A.F. Features of endoprosthetics of the hip joint for femoral neck fractures / A.F. Lazarev, A.O. Ragozin, E.I. Malt, M.G. Kakabadze // Vestn. traumatology and orthopedics them. N.N. Priorova. - M., 2003. - No. 2. - C. 3-8.
[18]. Hiroshi I, Matsuno T, Kaneda K: Bipolar hip arthroplasty for osteone¬crosis of the femoral head - a 7 to 18 years follow up. Clin Orthop 2000; 374: 201.
[19]. Chan Y, Shih C: Bipolar versus total hip arthroplasty for hip osteone¬crosis in the same patient. Clin Orthop. 2000; 379: 169-177.
[20]. Floren M, Lester D: Outcomes of total hip arthroplasty and contralat¬eral bipolar hemiarthroplasty: a case series. J Bone Joint Surg (Am). 2003; 85-A (3): 523-6
[21]. Lazarev A.F. Endoprosthetics or osteosynthesis for hip fractures: scientific publication / A. F. Lazarev, E. I. Solod // Actual problems of traumatology and orthopedics: Materials of scientific and practical. conf. (Samarkand, November 7, 2014). - Samarkand, 2014. - P. 131-132
[22]. Menshchikova O. A. Acute postoperative mental disorders in elderly and old patients with hip fractures during hip arthroplasty: the role of anemia and allogeneic transfusion: scientific publication / O. A. Menshchikova, V. V. Kuzmin, S. I. Solodushkin // The genius of orthopedics. - Kurgan, 2012. - No. 3. - S. 80-84.
[23]. Menshchikova O. A. Postoperative anemia and the risk of myocardial infarction in elderly and senile patients after total hip arthroplasty: scientific publication / O. A. Menshchikova, V. V. Kuzmin, S. I. Solodushkin // Genius of Orthopedics ... - Kurgan, 2014. - N4. - S. 39-44.
[24]. Mirzaidov A.M. The results of treatment of femoral neck fractures in elderly people. Mirzaidov, Z.A. Sharapov // Endosurgical methods in traumatology and orthopedics: materials of the Republican scientific-practical conference (November 3, 2006, Bukhara). - Bukhara, 2006. - P. 79
[25]. Soldatov Yu.P. The results of using a monolateral spoke-rod device in the treatment of patients with fractures of the femoral neck: scientific publication / Yu.P. Soldatov, A.S. Allakhverdiev // Actual problems of traumatology and orthopedics: Materials of scientific-practical ... conf. (Samarkand, November 7, 2014). - Samarkand, 2014 .-- P. 172-174.
[26]. Fedoseev A. V. Choice of the method of surgical treatment and rehabilitation of patients with medial fractures of the femoral neck: scientific publication / A. V. Fedoseev, A. A. Litvinov, PS Filonenko // Palliative medicine and rehabilitation. - M., 2006 .-- N4. - C. 19-22
[27]. Khudaibergenov M. Arthroplasty of the hip joint for a fracture of the femoral neck: scientific publication / M. Khudaibergenov // Doctor. - M., 2018 .-- Volume 29 N8. - S. 81-84.
[28]. Yusupov N.A. Errors and complications of surgical treatment of fractures of the femoral neck: scientific publication / N. A. Yusupov, A. K. Yuldashev // Actual problems of traumatology and orthopedics: materials of the IX Congress of orthopedic

traumatologists of Uzbekistan (Tashkent, 20 -21 October 2017). - Tashkent, 2017 .-- P. 236

[29]. Fedoseev A.V. The choice of the method of surgical treatment and rehabilitation of patients with medial fractures of the femoral neck: scientific publication / A.V. Fedoseev, A.A. Litvinov, P.S. Filonenko // Palliative. medicine and rehabilitation. - M., 2006. - No. 4. - S. 19-22.

[30]. Shuster G.M. Percutaneous fascicular osteosynthesis in medial fracture of the femoral neck against the background of osteoporosis in elderly patients. Shuster, N.K. Doronicheva, V.Yu. Popov, V.K. Doroniche // Clinical. gerontology. - M., 2005. - No. 4. - C. 60-61.

[31]. Ismoilova Himoyat, Khasanov Shodlik, Mukhamediev Mukhtarjan, Bekchanov Davronbek, Yarmanov Sherimmat, Yodgorov Bakhtiyor. Sorption of Zn (II) and Cr (III) Ions into Ion Exchangers Obtained on the Basis of Local Raw Materials. International Journal of Pharmaceutical Research, 2020; 12 (3): 1728-1738.

[32]. M.G. Mukhamediev, D.Zh. Bekchanov. New Anion Exchanger Based on Polyvinyl Chloride and Its Application in Industrial Water Treatment. Russian Journal of Applied Chemistry, 2019; 11: 1499-1505.

[33]. Rustamov M. K., Gafurova D. A., Karimov M.M., Bekchanov D. J., Rustamova N. M., Mukhamediev M. G. Application of Ion-Exchange Materials with High Specific Surface Area for Solving Environmental Problems. Russian Journal of General Chemistry, 2014; 84: 2545-2551.

[34]. D. Bekchanov, H. Kawakita, M. Mukhamediev, S. Khushvaktov, M. Juraev. Sorption of Cobalt (II) and Chromium (III) Ions to Nitrogen- and Sulfur-Containing Polyampholyte on the Basis of Polyvinylchloride. Polymers for Advanced Technologies. 2021. Vol. 32 (1). pp. 457-470. DOI: 10.1002/pat.5209

[35]. Bekchanov Davron, Mukhamediev Mukhtar, Kutlimuratov Nurbek, Xushvaqtov Suyun, Juraev Murod. Synthesis of a New Granulated Polyampholyte and its Sorption Properties. International Journal of Technology, 2020; 11 (4): 794-803.