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RESEARCH ARTICLE

The Clinical Effect of Artificial Hip Arthroplasty for the Treatment of Advanced Femoral Neck Fracture and its Effect on the Function of Hip Joint

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Abstract

Objective: To explore the clinical effect of artificial hip Arthroplasty for the treatment of advanced femoral neck fracture and its effect on the function of hip joint.

Selection methods: March 2021-March 2024 our hospital 220 cases of senile femoral neck fracture patients, according to different treatment is divided into two groups, control group treated with total hip replacement, the team used artificial femoral head replacement for treatment, compared two groups of patients with the treatment and prognosis.

Results: After treatment, the Harris hip score in the study group was lower than that in the control group ($P < 0.05$). After treatment, the length of operation, duration of operation, the amount of blood loss in the patients and the bed time were all higher than that in the control group ($P < 0.05$). After treatment, the effective rate of hip joint function was 95.5%, compared with 94.5% in the control group ($P < 0.05$).

Conclusion: The clinical effect of various artificial hip Arthroplasty for the treatment of advanced femoral neck fracture is ideal, so that the clinical curative effect can be improved effectively and the quality of life of the patients is improved.

Keywords

Artificial hip arthroplasty, Bone fracture of the femur neck, Clinical effect, Hip function, Influence

Introduction

Older patients with femoral neck fractures refer to patients younger than 70-years-old. With the aging of China's population, in the clinical treatment of femoral neck fractures, there are more elderly patients [1]. Femoral neck fracture is a relatively common orthopedic fracture. In clinical treatment, there are many ways to treat femoral neck fractures, but in the treatment of elderly patients, the physical conditions and actual conditions of the elderly patients should be considered [2]. Internal fixation is a common treatment for femoral neck fractures. Older patients usually take care of themselves before they are injured, and have a good quality of life, but most elderly patients suffer from diseases such as heart disease, high blood pressure, high blood fat and lung disease. In this case, the effect of internal fixation is not ideal. Artificial hip replacement has gradually replaced internal fixation as one of the main ways to treat femoral neck fractures in the elderly. Artificial hip replacement is divided into total hip replacement and artificial femoral head replacement [3]. Our hospital used artificial hip joint replacement in the treatment of elderly patients with femoral neck fractures, and explored the effect of this method on hip function. After the study, the treatment effect was good. The relevant situation is summarized as follows.

Information and Methods

General information

A total of 220 patients with femoral neck fractures admitted to our hospital from March 2021 to March 2024 were selected and divided into control and study groups according to different treatment methods. All of the above patients had been diagnosed as femoral neck

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fractures by CT examination and X-ray examination.

Inclusion criteria: 1) All patients were fresh fractures and no surgical contraindications. 2) All patients can walk normally before fracture. 3) All patients are not younger than 70-years-old. 4) All patients choose to be treated with drugs.

Exclusion criteria: The following types of patients were not eligible to participate in this study: 1) Patients with mental or neurological abnormalities or other diseases that affect the results of the study. 2) Patients with surgical intolerance. 3) Patients with more serious heart, liver and kidney dysfunction [4]. 4) Patients with cardiovascular and cerebrovascular diseases or medical diseases that cannot be treated surgically. 5) Patients with major dysfunction in major organs. 6) Can not actively cooperate with the study of patients treated.

110 patients in the control group, 42 males and 68 females, aged 70-96 years, mean (73.5 ± 2.54) years-old; 110 patients in the study group, 47 males and 63 females, aged 70-89 years-old, average (72.6 ± 2.84) years-old. The general data of the two groups were comparable ($p > 0.05$), and all of them were informed and approved by the hospital ethics committee.

Method

Study group treatment methods: The study group was treated with total hip arthroplasty. 1) First, preoperative preparation is required. After admission to the elderly patients with femoral neck fractures, the medical staff should have a detailed understanding of the patient's medical history and routinely check the patient's fracture degree. Before performing the operation, the medical staff should assess the patient's physical condition, the risk of surgery, and the presence or absence of surgical contraindications, as well as the side abductor function. The patient should be trained in bed urination and defecation; training in coughing and deep breathing; and teaching the patient to actively distort the back and forth. 2) Specific surgical methods of operation. The patient was first treated with general anesthesia or combined with spinal anesthesia, continuous epidural anesthesia, and the patient was fixed in the lateral position. After the patient was anesthetized, the small incision was made from the posterior lateral incision. The length of the incision was about 12 cm. The patient's hip capsule was incised, the patient's femoral head was dislocated backward, and the femoral neck was cut off and the femoral head [5] was removed. Thoroughly clean the acetabulum and polish the cartilage surface of the acetabulum through the acetabulum until the cartilage surface appears evenly oozing. The acetabular prosthesis suitable for the patient is selected and implanted, followed by implantation of the femoral prosthesis. Finally, the patient was fixed with a trapezoidal pillow [6].

Treatment method of the control group: The control group was treated with artificial femoral head replacement. The preoperative preparation method of the control group was consistent with the study group. The specific surgical operation of the control group was as follows: Firstly, the patient underwent general anesthesia or combined with spinal anesthesia and continuous epidural anesthesia, and the patient was fixed in the lateral position. After the patient was anesthetized, the small incision was made from the posterior lateral incision, and the length of the incision was about 10 cm. The patient's hip is exposed, the patient's hip joint capsule is cut, the patient's femoral head is dislocated backward from the inside, and the femoral neck is cut off and the femoral head is removed. The acetabulum is exposed and thoroughly cleaned. If the patient has an acetabular defect, it needs to be repaired, and the part of the acetabulum that is connected to the prosthesis is sequentially ground [7]. After the trial and adjustment of the femoral head, the femoral prosthesis is installed according to the condition of the trial to restore the hip joint relationship. All patients were required to check the length, stability and mobility of the lower limbs of the patient after the reduction of the joint, and the surgical field was washed, without leaving the plasma drainage tube, sutured layer by layer. Finally, the patient is fixed by the trapezoidal pillow [8].

Both groups of patients were monitored for oxygen saturation, blood pressure, and ECG monitoring during the procedure. If the patient's bleeding volume exceeds 800 ml, the patient needs to be transfused. If the patient has diabetes, the patient's blood glucose should be monitored and adjusted to control the patient's blood glucose between 4 mmol/L and 8 mmol/L.

Observation indicators

The operation and condition of the two groups of patients with femoral neck fractures were observed and analyzed, including the clinical treatment effect, the length of surgery, the amount of bleeding in the patients, the time of bed-out after surgery and the recovery effect of the patients. The clinical efficacy of the patients was scored according to the Harris hip score (Harris hip score) from pain, function, lower extremity malformation, and hip range of motion. Observe the effect of the two groups of surgical procedures on the hip joint function. The evaluation criteria of the patient's clinical treatment effect are: out of 100 points, 90% or more is excellent, 80-90 is good, and 70-80 is acceptable, less than 7O Divided into differences.

Statistical methods

The test data were analyzed by SPSS18.0, expressed by ($x \pm s$), using t test; using (%), using x^2 test, $P < 0.05$ was considered statistically significant.

Results

After treatment, the Harris hip scores of the study group patients were lower than the control group (P < 0.05). See Table 1 for details.

After treatment, the duration of surgery, the duration of surgery, the amount of bleeding in the patients, and the time of bed-out were higher in the study group than in the control group (p < 0.05). See Table 2 for details.

After treatment, the effective rate of hip function in the study group was 95.5%, which was higher than that of the control group (94.5%) (P < 0.05). See Table 3 for details.

Conclusion

Harris hip score can significantly affect the quality of life of patients. Hip function has a direct impact on the quality of life of patients. This score can effectively reflect the specific function of hip function in patients, that is, the higher the Harris hip score of patients, the higher the score. The better the patient's hip function, the higher the quality of life. After the end of the operation, the patient should be reminded to pay attention to the blood flow of his lower limbs. Usually, the incision suture [9] is performed 2 weeks after the patient performs the operation. After the patient is awake, the patient is instructed to perform relaxation exercises such as lower limb muscles. After the end of the operation, the patient can perform rehabilitation training. On the 2-3rd day after the end of the operation, the patient should use the walking aid to perform the walking practice under the guidance of the doctor. The number of steps is 100-300 steps, and the practice time is 2 times a day. After 2 weeks, the practice of walking on the side of the crutches was carried out, and hip abduction, flexion and extension exercises were performed at the same time; after 6 weeks, the practice of walking with a cane protection [10] was carried out. At the same time, after the patient is discharged from the hospital, the patient should be reminded to pay attention to his or her behavior, to prevent the hip joint from being placed in a position that is easy to dislocate, to prohibit the sitting of the "Jilang leg", to stand up from the seat when the hip joint is received, and the internal rotation position is raised [11]. The patient is taught to perform hip flexion and extension exercises and outreach exercises [12]. In this study, it was confirmed by controlled study that the Harris hip score of the study group was lower than that of the control group after treatment (P < 0.05). After treatment, the duration of surgery, the length of surgery, the amount of bleeding in the patients, and the time to go to the patients in the study group were higher than those in the control group (P < 0.05). After treatment, the effective rate of hip function in the study group was 95.5%, which was higher than that in the control group (94.5%) (P < 0.05). It shows that the two surgical methods of artificial hip replacement are effective.

Table 1: Comparison of Harris hip scores between the two groups ($\overline{x} \pm s$).

Group	Number of cases	Preoperative	One month after surgery	Two months after surgery	Three months after surgery
Control group	110	24.6 ± 10.7	71.1 ± 6.5	82.6 ± 6.6	88.9 ± 10.5
research group	110	23.2 ± 10.3	69.7 ± 6.2	80.2 ± 6.2	83.2 ± 10.2
T	/	4.458	4.985	5.143	6.859
P	/	< 0.05	< 0.05	< 0.05	< 0.05

Table 2: Comparison of surgical conditions between the two groups of patients ($\overline{x} \pm s$).

Group	Number of cases	Length of surgery (min)	Intraoperative blood loss (ml)	Postoperative bedtime (d)
Control group	110	85.3 ± 14.8	97.5 ± 10.8	4.1 ± 1.2
research group	110	98.1 ± 20.4	157.2 ± 20.1	7.9 ± 1.3
T	/	13.849	12.585	13.849
P	/	< 0.05	< 0.05	< 0.05

Table 3: Comparison of hip function between the two groups (%, case).

Group	Number of cases	Excellent	Still	Difference	Efficient
Control group	110	82 (74.5)	22 (20.0)	6 (5.5)	104 (94.5)
research group	110	93 (84.5)	12 (10.9)	5 (4.5)	105 (95.5)
x^2	/	6.231	5.958	4.652	4.652
P	/	< 0.05	< 0.05	< 0.05	< 0.05

Today, artificial hip arthroplasty is a common surgical procedure in many treatments for femoral neck fractures [13]. With the development of modern technology, medical treatment technology is also constantly developing, and total hip replacement has also made significant progress, which greatly shortens the operation time and effectively reduces the risk during the operation. Artificial femoral head replacement has the advantages of less intraoperative blood loss, less surgical trauma and shorter operation time [14]. When using artificial hip arthroplasty to treat patients, it is necessary to combine the patient's physical condition with the condition and economic situation to select the most appropriate surgical procedure [15].

In summary, the clinical effects of various artificial hip arthroplasty in the treatment of femoral neck fractures are ideal, which can effectively improve the clinical efficacy rate, improve the quality of life of patients, and improve the Harris hip score of patients. The recovery of hip function is of great significance and deserves clinical promotion and application.

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