

**RESULTS OF EARLY ENDOPROSTHETICS OF THE HIP JOINT IN
INDIVIDUALS OF THE OLDER AGE GROUP FOR HIP BONE FRACTURES**

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Abstract: An analysis of the treatment results of 227 elderly and senile patients with femoral neck fractures was conducted. Women prevailed - 146 (64.4%), and between the ages of 60 and 80 - 183 (80.6%). To study the effectiveness of treatment tactics and assess the immediate and long-term results of treatment, two observation groups were formed: the main group - 110 patients who underwent 114 primary endoprosthetics of the hip joint in the early period of injury (up to 7 days), the control group - 117 patients who also underwent endoprosthetics of the hip joint in the late period (10 days or more).

All examined patients underwent surgery, in all cases, total endoprosthetics was performed, with cementless endoprosthetics in 70.2%, cemented endoprosthetics in 28.2%, and combined endoprosthetics in 1.6%.

The immediate results of treatment in both compared groups were favorable anatomical and functional outcomes in 89.5% of cases. Positive outcomes in the early endoprosthetics group were somewhat higher - 93.2%, while unsatisfactory outcomes were recorded twice lower than in the comparison group - 6.8% and 14.1%, respectively. In the long-term period of observation in both groups, excellent results were noted in only 10.4%, good results in 32.4%, and satisfactory results in 44.2% of patients. Unsatisfactory results were noted in 13.0% of patients. When comparing the main and control groups, positive outcomes were somewhat higher in the main group - 88.3% and 85.0%, respectively.

In the long-term period of observation in both groups, excellent results were noted in only 10.4%, good results in 32.4%, and satisfactory results in 44.2% of patients. Unsatisfactory results were noted in 13.0% of patients. When comparing the main and control groups, positive outcomes were somewhat higher in the main group - 88.3% and 85.0%, respectively.

In the long-term period, the dependence of treatment results on the use of additional means that strengthen the stability of endoprosthesis fixation was revealed. Good treatment results were obtained in 60.9% with cement fixation, 39.1% with non-cement fixation, and 32.8% with combined fixation.

Keywords: femoral neck fractures, hip joint, older age group, early endoprosthetics.

Material and methods. An analysis of the treatment outcomes of 227 elderly and senile patients with femoral neck fractures was conducted according to the WHO classification. All patients received treatment in the adult orthopedics and adult traumatology departments of the RSC EMC between 2020 and 2025.

To study the effectiveness of the tactics and methods of staged treatment, and to evaluate the immediate and long-term functional results of treatment, two observation groups were formed:

The main group consisted of 110 patients who underwent 114 primary endoprosthetic operations on the hip joint in the early period of injury (up to 7 days), using the treatment and diagnostic algorithms developed in the clinic at all stages of treatment;

The control group consisted of 117 patients who also underwent endoprosthetics of the hip joint at a later stage (10 days or more) and under traditional management.

Among the patients, women prevailed - 146 (64.4%), men - 81 (35.6%), the age of the patients ranged from 60 to 91 years. The largest number of operated patients in both groups was observed between the ages of 60 and 80 - 183 (80.6%).

The main cause of injury in patients of the main group was falling on the street (street trauma) - 79 (72.2%) patients. 29 (26.3%) patients suffered injuries in everyday life, falling from a height of about 1 meter (bench, table, chair, ladder), and 2 (1.5%) patients received injuries as a result of a traffic accident. In the comparison group, 84 (71.8%) patients were injured as a result of falling on the street, indoors, or in transport, 30 (25.6%) patients were injured as a result of falling from a height of their own height, and 3 (2.6%) patients were injured as a result of a traffic accident.

Analyzing the radiological examination data, it was revealed that patients with subcapital fractures prevailed in both groups - 148 (65.2%), followed by transcervical fractures - 53 (23.3%) and basal fractures - 26 (11.5%). In the main and control groups, patients with subcapital fractures of the femoral neck prevailed - 80 (72.7%) and 68 (58.1%), respectively.

Out of 227 patients, 443 identified somatic disorders occurred, with an average of 1.95 diseases per patient. In both groups, the presence of concomitant pathology was identical, pathology from the cardiovascular system (RHD, cardiosclerosis, atherosclerosis) prevailed - 158 (72.8%), damage to peripheral vessels in the form of varicose disease of the extremities, etc. - 157 (72.4%), followed by diabetes mellitus - 75 (34.6%) observations. The presence of two or more somatic deviations in the patient caused significant difficulties in planning surgical intervention, choosing anesthesia, and in the postoperative period of the rehabilitation program.

One of the important problems of geriatric practice is comorbidity, and when studying the frequency and level of comorbidity in elderly and senile patients with femoral neck fractures, we took into account the anamnesis, clinical and instrumental data, and studied the profile of concomitant somatic pathology. Comorbidity assessment was carried out using special comorbidity indices - the Charlson index, proposed for assessing the long-term prognosis of patients, and the CIRS index (Cumulative Illness Rating Scale).

In our clinical material, when assessing the comorbidity indices, its high indicators were revealed, as the average age of the patients included in the study was 71.4 ± 7.1 years, and the maximum reached 93 years. Comorbidities that developed before the injury occurred in all patients, we considered only those pathologies that required drug correction and influenced the severity of the patients' condition, the choice of treatment tactics, the degree of motor activity, as well as the quality of life before the injury. Thus, the average index was 9.12 ± 1.05 points. To facilitate the interpretation of the obtained data, we divided the comorbidity indicators, depending on the total score, into three levels: low (4 points) - 49 (21.5%); average (5-10 points) - 105 (46.3%); high (11 points) - 73 (32.2%) observations.

Assessment of comorbidity using the CIRS index made it possible to assess not only the presence of concomitant pathology, but also its severity. The CIRS comorbidity index among the examined patients averaged 12.2 ± 3.9 points. For the interpretation of the indicator, we also used a division into three levels: low (10 points) - 55 (24.3%); average (11-20 points) - 93 (40.9%); high (21 points) - 79 (34.8%) observations. It should be noted that identical indicators of the comorbidity level were noted in both compared observation groups.

We believe that one of the important factors in determining treatment tactics is the degree of motor activity of patients in the period before the injury, we took a 5-point assessment system as a basis. In both groups of treated patients, 166 (73.1%) were individuals with a relatively favorable level of physical activity, which had significance in choosing an active surgical treatment tactic.

Results and discussion.

All examined patients underwent surgery, in all cases, total endoprosthetics was performed, with cementless endoprosthetics in 70.2%, cemented endoprosthetics in 28.2%, and combined endoprosthetics in 1.6% of cases.

The early immediate results of treating patients with femoral neck fractures were studied in all 227 patients (110 - main and 117 - control groups). Criteria for assessing the early immediate results of treatment of elderly and senile patients after endoprosthetics of the hip joint were developed.

Taking into account the developed criteria for immediate results in both compared groups, in most cases in 204 patients, in 89.5% of cases, we obtained favorable (good - 49.3% and satisfactory - 40.5%) anatomical and functional results. It should be noted that the positive outcomes in the main group were somewhat higher - 93.2%. At the same time, unsatisfactory outcomes were noted two times less than in the comparison group - 6.8% and 14.1%, respectively.

We analyzed the dependence of treatment outcomes on the level of patients' initial somatic status - the level of comorbidity. For this purpose, we used standard Charson comorbidity level scales, and in both compared groups, a direct dependence of the immediate results on the comorbidity level was noted. The higher the level of comorbidity, the worse the treatment results. Moreover, these data were comparable on both assessment scales, with unsatisfactory treatment outcomes in both groups according to the Charson and CIRS scales being 17.8% and 13.9%, respectively.

Hypostatic complications were noted in 50 (22.0%) patients. Disorders of blood rheological properties in the form of thrombosis and TELA - in 50 (22.0%) and exacerbation of concomitant pathology that affected the treatment outcome - in 61 (26.9%). These complications led to a fatal outcome, with a total of 6 cases (2.6%) of hospital mortality. In 21 cases, 9.3% had local purulent complications that required long-term treatment. Technical complications in the postoperative period from the surgical interventions (in the form of endoprosthesis instability and relaxation) were noted in 27 (11.9%) patients. As can be seen from the table, the percentage of development of all possible complications in the main group was an order of magnitude lower compared to the control group.

The immediate results of treatment after endoprosthetics, within 3, 6, and 12 months after surgery, were studied in 185 (81.6%) patients (92 in the main and 93 in the control groups).

Good treatment results in the long-term period were obtained with the use of cement for fixing endoprosthetic elements - 60.9%, compared to the use of cement-free fixation methods - 39.1% and combined fixation - 32.8%.

Thus, we can say that currently, the most effective and promising method of treating fractures of the femoral neck in patients of the older age group is early endoprosthetics of the hip joint, as evidenced by the positive results obtained during the scientific research.

CONCLUSION

1. To improve the therapeutic and diagnostic process at the stage of implementing early endoprosthetics tactics, the algorithm for selecting the method for fixing endoprosthetic components, the program for diagnosing, treating, and preventing venous thromboembolic complications, and the complex of phased rehabilitation measures developed by us, demonstrated high effectiveness.
2. The immediate results of treatment in both compared groups were favorable anatomical and functional outcomes in 89.5% of cases. Positive outcomes in the early endoprosthetics group were somewhat higher - 93.2%, while unsatisfactory outcomes were noted twice lower than in the comparison group - 6.8% and 14.1%, respectively. When analyzing treatment outcomes from the level of comorbidity in both compared groups, it was noted that the higher the level of comorbidity, the worse the treatment outcome. Moreover, these data were comparable on both assessment scales, with unsatisfactory treatment outcomes in both groups according to the Charson scale and CIRS. When analyzing treatment outcomes from the level of comorbidity in both compared groups, it was noted that the higher the level of comorbidity, the worse the treatment outcome. Moreover, these data were comparable on

both assessment scales, with unsatisfactory treatment outcomes in both groups according to the Charson and CIRS scales being 17.8% and 13.9%, respectively.

3. In the long-term period of observation in both groups, excellent results were noted in only 10.4%, good results in 32.4%, and satisfactory results in 44.2% of patients. Unsatisfactory results were noted in 13.0% of patients. When comparing the main and control groups, positive outcomes were somewhat higher in the main group - 88.3% and 85.0%, respectively. A direct dependence of treatment outcomes on the initial level of bone tissue status in patients was revealed. In the group of patients with normal severity of osteoporosis, good results prevailed (40.0%) over others (osteopenia - 33.9%, osteoporosis - 30.9%). In the long-term period, the dependence of treatment results on the use of additional means that strengthen the stability of endoprosthesis fixation was revealed. Good treatment results were obtained in 60.9% with cement fixation, 39.1% with non-cement fixation, and 32.8% with combined fixation.

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