TREATMENT TACTICS FOR SUBCOMPENSATED OSTEOARTHRITIS

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Relevance: At the present stage, osteoarthritis is one of the most common joint pathologies. This disease occurs with high frequency among patients over 50 years old, but cases of osteoarthritis are increasingly observed in younger people. It is worth noting that a high percentage of elderly patients suffering from osteoarthritis have a number of concomitant diseases, which determines a significant level of comorbidity in these patients. The gold standard for the treatment of osteoarthritis stages III-IV is joint arthroplasty. It is known that after endoprosthetics, the functional activity of the contralateral joint is significantly reduced, which subsequently leads to knee replacement surgery on the originally intact limb [1]. Soinivaara T.A. et al. studied the bone mineral density (BMD) of the femur of the operated and contralateral limb among patients who underwent knee arthroplasty. A significant decrease in BMD was noted after joint arthroplasty, which plays a major role in patient therapy in the postoperative period.

Objective: To develop a rational drug strategy in the perioperative period for patients who underwent arthroplasty of a joint affected by osteoarthritic disease in order to prevent decompensation of the contralateral joint.

Materials and methods: The surgical treatment of 316 patients with stage III, IV gonarthrosis, who were observed from 2014 to 2024, was evaluated. There were 251 women (79.43%) with a mean age of 62.2 ± 8.4 SD years and 65 men (20.57%) with a mean age of 64.3 ± 9.3 SD years. The main group included 85 patients (26.89%) after knee arthroplasty. This group was offered to undergo a course of antiresorptive therapy, which included taking 2 tablets of ossein-hydroxyapatite compound 2 times a day, native vitamin D at least 2000 IU, and the monoclonal antibody denosumab 60 mg subcutaneously 2 times a year. The comparison group included 231 (73.11%) patients who were recommended combination therapy consisting of calcium salts and vitamin D3 in the same dosages in accordance with individual characteristics. Also, among the patients of the two groups, 10 people were randomly selected, whose morphological sections of the femur and tibia after endoprosthetics surgery were sent

for histological examination to identify the degree of degeneration of articular cartilage of the knee joint affected by osteoarthritis.

Results and discussion: The histological structure of the articular cartilage of the tibia of patients in the main group shows a lower density of isogenic groups of cartilaginous cells compared to healthy cartilaginous tissue. The cartilaginous lacuna often contains a single number of cells. Heterogeneity of the intercellular matrix and heterogeneous perception of basic dyes by the matrix are noted. The perichondrium has different thicknesses throughout its length. Among the tibial cartilage materials obtained from the comparison group patients, a lower density of isogenic groups was found. The lacunae are characterized by unequal diameters, containing mainly one, less often two chondrocytes. Chondrocytes are large in size. The intercellular matrix of the articular cartilage also unevenly absorbs dyes. Perichondrium destruction zones are more common than in patients of the main group. The structure of the articular cartilage of the femur is characterized by greater degeneration of cartilaginous cells and intercellular matrix than in the tibia. At the same time, more serious changes are visible in the materials of the comparison group patients.

To assess the results of the functional activity of the contralateral knee joint in the perioperative period, the KSS scale was used. Among the patients of the comparison group, a gradual decrease in functional activity was revealed. At the end of the first month after endoprosthetics, the functional activity according to the KSS scale was 66.87±5.23 SD. The average value on the studied scale before surgery was 70.65±8.21 SD. By the end of the third month after surgery, motor activity significantly decreased and amounted to 60.57±5.52 SD. Then, until the twelfth month of the postoperative period, the functional activity decreased to 41.45±7.45 SD. Among the patients of the main group, permanent restoration of functional activity indicators was noted in the perioperative period. The preoperative value of the KSS scale of the main group was 78.37±6.29 SD. By the end of the first month, the functional activity slightly decreased, while amounting to 76.45±5.31 SD. In the third month of the postoperative period, the KSS scale value was at the level of 76±5.72 SD, which indicates the preservation of motor activity of the contralateral knee joint. A slight decrease in activity occurred in the period of 6 months after the operation 72.7±6.83 SD, but subsequently up to 12 months, functional activity was completely restored to the initial preoperative level, amounting to 78.37±7.25 SD. Thus, the therapy of the comparison group was less effective ($p<0.05$).

Conclusions and findings: In case of endoprosthetics of one knee joint under conditions of drug support, antiresorptive drugs help to delay decompensation of the contralateral joint. The use of ossein-hydroxyapatite complex, native vitamin D 2000 IU and monoclonal antibody drug denosumab is pathogenetically justified in the

perioperative period, as evidenced by the dynamics of functional activity of the main group and the comparison group.

When conducting a histological examination of the articular cartilage of the femur and tibia in patients with osteoarthritis of the knee joint, deep degenerative lesions of the articular cartilage are observed in both groups. Thus, we consider it rational to use 30 mg hyaluronic acid 2 ml (Armaviscon 1.5%) three times a week in the perioperative period to prevent decompensation of the contralateral joint.

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