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EVALUATION OF THE FUTURE RESULTS OF APPLICATION OF ARTHRO-MEDULLARY BYPASSING IN GONARTHROSIS

Ziyadullaev Abdusalom Khabibulla oglu
Bukhara state medical institute, Bukhara, Uzbekistan

Abstract. Short-term (3-6 months) results of using a new type of implants for the delivery of intraosseous contents into the cavity of the affected knee joints are presented, i.e. for performing arthro-medullary bypass grafting (AMS). Arthroscopic debridement of the knee joint was performed in 69 patients with stage 2-3 osteoarthritis, whose clinical and demographic data did not differ from each other. Radiographically, the stability of the implant was established for 6 months, without signs of osteolysis and bone loss around the perimeter of the implant. By 6 months, patients after AMS had practically stopped taking drugs, while in the control group at this time, 50% of patients had to regularly take these drugs in one form or another.

Keywords: gonarthrosis, arthro-medullary bypass surgery, implant, osteolysis, evaluation.

INTRODUCTION

Osteoarthritis is a heterogeneous group of diseases of various etiologies with similar biological, morphological, clinical manifestations and outcomes, which are based on the defeat of all components of the joint, primarily cartilage, as well as the subchondral bone, synovial membrane, ligaments, capsule, periarticular muscles [1, 4].

Degenerative-dystrophic diseases of the joints are one of the main pathologies in the elderly, reaching 6.4-12% of the population. In Uzbekistan, about 1.5 million people suffer from this disease. In the affected joints, the lubrication of the articular cartilage deteriorates, their sliding and proper functioning are impaired, and the content of proinflammatory cytokines increases [7, 9].

It is known that the bone adjacent to the implant (endoprosthesis) reacts to it regardless of its initial quality. The reaction of bone tissue to the implant is manifested by an initial increase in resorption and is considered as a process of adaptation to new conditions [1, 12]. Changes in the intensity of remodeling processes, on the one hand, are aimed at increasing bone mass and osseointegration with the implant, and on the other, it can cause bone resorption with the development of aseptic instability leading to repeated surgical interventions [2, 11].

As the disease progresses, full-thickness cartilage lesions develop. With arthroscopic debridement of joints, perforations of the subchondral bone plate of the affected areas of the articular surfaces are often performed. With this application, osteoperforative operations are aimed at using the patient's own mesenchymal cells of the patient's bone marrow [8, 10]. Along with this, attention is drawn to the physicochemical properties and biochemical composition of the liquid fraction of the intraosseous contents. A significant part of it is bone fat, which consists mainly of triglycerides and contains a large amount of antioxidants. Bone fat exhibits a

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pronounced lubricating effect in natural and artificial friction pairs, and due to the presence of antioxidants, it also has a protective effect under conditions of oxidative stress [3, 6].

Short-term (3-6 months) results of using a new type of implants for the delivery of intraosseous contents into the cavity of the affected knee joints are presented, i.e. for performing arthro-medullary bypass grafting (AMS) [2, 5].

MATERIAL AND METHODS

Arthroscopic debridement of the knee joint was performed in 69 patients with stage 2-3 osteoarthritis, whose clinical and demographic data did not differ from each other. If necessary, we performed resection of detached cartilage, partial marginal resection of menisci, and treatment of chondromalacia zones. In 23 cases, the operation was completed with the installation of an arthromedullary implant.

Evaluation of treatment results was carried out according to 2 questionnaires: KOOS (without assessment of sports loads) and Leken. The frequency of NSAID use was also assessed. Control radiography was performed immediately after surgery and 6 months later. Statistical processing was carried out according to the Student's test.

RESULTS AND DISCUSSION

Radiographically, the stability of the implant was established for 6 months, without signs of osteolysis and bone loss around the perimeter of the implant.

When assessing the condition of the affected joints according to the KOOS and Leken questionnaires in the group with AMS, there was a rapid significant improvement in indicators already at a period of 3 months and a subsequent, less pronounced improvement after 6 months. Changes in the indices are statistically significant from their values to the operation. During operations without shunting, positive changes in indicators were significantly less pronounced than in the group with AMS.

The analysis of the indices of the subscales of the CEP questionnaire revealed that during bypass surgery the stiffness of the affected joint improved significantly and remained during the observation period. In the control group, joint stiffness practically did not change after 3 months, and after 6 months, despite a slight decrease, it did not statistically differ from the initial level.

With respect to the pain index, both in the control and in the group with AMS, after 3 months of observation, there was a decrease in its value compared to the initial level. However, in the group with AMS, the resolution of the pain syndrome is much more pronounced, so that after 6 months the value of the pain index is 2 times lower than in the control group.

After arthroscopic debridement without shunting, there was a moderate improvement in joint function during the first 3 months of follow-up, with a slight improvement in the next 3 months. In the group of patients with AMS, a pronounced improvement in joint function (2 times) was noted already after 3 months and persisted up to 6 months, being significantly better than in the control group.

It was also found that 3 months after AMS, only 12.5% (versus 33% in the control) regularly took NSAIDs. By 6 months, patients after AMS had practically stopped taking drugs, while in the control group at this time, 50% of patients had to regularly take these drugs in one form or another.

CONCLUSIONS

The results obtained indicate that the use of arthro-medullary bypass grafting for arthroscopic debridement of knee joints affected by arthrosis contributes to an accelerated and pronounced improvement in organ function, allows the patient's body resources to be used to slow down the progression of this disease.

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