Dear colleagues,

You are invited to read the final in 2023 issue of our journal.

The Clinical Studies section opens with the work of a team of authors from Samara (Semenkin et al.), which presents the principles of surgical treatment of delayed carpal tunnel syndrome (DCTS) in malunited fractures of the distal metaepiphysis of the radius (DMR). Having studied the results of treating 33 patients, the authors came to a conclusion that corrective osteotomy and osteosynthesis with a palmar locking plate is a reliable and effective method of treatment in malunion of the radius. In moderate and severe DCTS, combined with intermediate and predominantly dorsal DMR deformity, the best results can be achieved by open release of the carpal tunnel from a separate limited approach. In mild DCTS, as well as in predominantly palmar DMR deformity, decompression of the median nerve can be performed from the main extended approach to the radial flexor of the wrist.

The results of intramedullary osteosynthesis in re-fractures of the forearm bones in children that depend on the time of their occurrence are presented in the publication by the authors from Uzbekistan Kosimov AA and Khodzhanov IYu. Their analysis of treatment outcomes in 48 children showed that the success of repeated healing depends on the stage of bone regeneration at the time of forearm re-fracture occurrence. In the early stage of repeated fracture, the regeneration process is more advanced.

The problem of primary and revision hip arthroplasty associated with acetabular defect is the subject of the work by Udintseva et al. (Yekaterinburg, Kurgan). Based on the analysis of the treatment results of 93 patients, the authors conclude that long-term and painless functioning of a hip joint implant in acetabular defects is possible along with restoration of the spherical shape of the acetabulum and the joint rotation center in the true acetabular region, in adequate replenishment of bone tissue deficiency and reliable primary fixation of the cup with provision of conditions for secondary stabilization due to osseointegration. Acetabular defects are diverse in their anatomical manifestations. This fact creates certain difficulties in choosing pelvic components, augments, and methods of their fixation to the pelvic bone.

Results of intraoperative alpha-defensin express test used in 105 patients at the second stage of revision hip arthroplasty are demonstrated in the work of Murylev et al. (Moscow, Istanbul). The authors note that the test demonstrated 96.39 % specificity, 89.52 % accuracy and 63.64 % sensitivity. It has high diagnostic value in the intraoperative verification of reinfection in patients with an installed hip spacer, allowing timely correction of treatment tactics. Cases of "dry tap", synovial fluid material that does not meet the requirements for performing the test and weakly virulent coagulase-negative microflora, including as part of microbial associations, are limitations of in use of alpha-defensin express test.

Clinical results of impregnating a silver-containing preparation in an antimicrobial spacer for treatment of periprosthetic hip joint infection are presented in the work of the authors from St. Petersburg (Bozhkova et al.). The obtained results of the study showed that in the debridement stage of a two-stage treatment for chronic PJI of the hip joint caused by gram-positive bacteria, the antimicrobial spacer with highly dispersed silver showed high efficiency; however, further development of new combinations for impregnation of bone cement is required in order to expand the spectrum of antimicrobial activity of spacers.

The results of minimally invasive decompression and bone autoplasty in combination with autologous bone marrow concentrate (ABMC) in the treatment of 86 patients with aseptic osteonecrosis of the femoral head are presented in the work of Naida et al. (Moscow, Volgograd, Cheboksary). The authors note that the technique of minimally invasive decompression and bone

autoplasty in combination with ABMC is an effective method of treatment at precollapse stages of ANFH that improves the quality of life of patients, but does not achieve regression of structural changes in the bone.

Lychagin et al. (Moscow) discuss the problem of kinematic alignment in robotic total knee arthroplasty. Based on the data obtained during the treatment of 47 patients, the authors state that a personalized approach to total knee arthroplasty using an active robotic unit allows for effective kinematic alignment of the lower limb axis with an accuracy of up to 2° in 87.3 % of patients.

The optimal method of lateral lengthening osteotomy of the calcaneus based on a tomographic study of the feet in 250 patients is presented in the work of Gudi et al. (Novosibirsk). The results of the study showed that the Hintermann method of osteotomy of the calcaneus can be successfully applied in the Russian population with fewer complications, in particular, a lower number of injuries to the articular facets of the subtalar joint.

Theoretical studies are presented in this issue by three publications.

The effect of transphyseal intramedullary rod on the formation of distraction regenerate of the tibia and its subsequent growth in lambs was studied Kononovich et al. (Kurgan). The authors observed that pronounced periosteal osteogenesis and additional stabilization of the position of bone fragments in the conditions of a transphyseal rigid titanium rod contribute to a faster formation and maturation of bone regenerate. There were neither signs of the elongated segment spontaneous growth inhibition nor signs of epiphysiodesis at the level of the transphyseal implant. The central location of the transphyseal rod relative to the plane of the growth zone and the area of its cross-section of less than 5 % of the physis area can be considered conditions under which epiphysiodesis does not develop.

The release of antibiotics from materials for post-osteomyelitic bone defect filling was studied by authors from Kurgan (Stogov et al.). A comparative *in vitro* analysis of the kinetics of the release of cefotaxime, vancomycin and meropenem from two materials was conducted: based on polyurethane polymers (RK series) and based on polymethyl methacrylate (PMMA series). The results obtained by the authors showed that the duration of the release of the studied antibiotics in effective concentrations from the material based on polyurethane polymers is longer than from the material based on PMMA.

Bayan Jabr Hussein and Ban A. Ghani (Iraq) studied the distribution of osteocalcin during the healing of bone injuries by topical application of collagen and beta-tricalcium phosphate in rats. Based on the data obtained, the authors revealed that the combination of collagen with β-TCP showed the greatest efficiency in accelerating bone healing and increased osteogenic capacity due to increased immunoreactivity of osteocalcin.

The New Technologies section presents the publication by Skrebtsov et al. (Moscow). The authors developed an original model of a hemiendoprosthesis of the first metatarsophalangeal joint and a method for its installation in the treatment of hallux rigidus stage 3–4. The authors demonstrate a clinical case of treating a 74-year-old patient with stage 3 osteoarthritis of the first metatarsophalangeal joint and state that hemiarthroplasty of the first metatarsophalangeal joint with an implant made of zirconium ceramics of the original model has shown effectiveness in treating patients with hallux rigidus stage 3–4. The technique may be a good alternative to arthrodesis of this joint.

Two literature reviews that conclude the issue are devoted to current trends in the treatment of patients with degenerative lumbar spinal stenosis using direct lateral spondylodesis with indirect decompression of the spinal cord roots (Isakov et al., Novosibirsk) and patients with stenosing ligamentitis of the fingers (Kotelnikov et al., Samara).

On behalf of the editorial board, I congratulate the readers of our journal on the New Year and wish them happiness and professional success.

A.V. Burtsev, MD
Chief Editor of Genij Ortopedii