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Fund “Nauka” Project № 22015 Resume – Competition-based Session 2022:

“Long-term rehabilitation results in patients with orthopedic implants of the upper and lower extremities”

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The **aim** of the present study is to analyze and compare the effects of application of physical therapy modalities in patients with orthopedic implants of upper and lower extremity. For this purpose, the clinical effectiveness of two physiotherapy complexes in patients with orthopedic implants of the upper and lower extremity will be monitored and compared at four points in time; reporting, analyzing, and comparing short- and long-term treatment effects in the eight groups using measurement indicators. The contingent of the study are patients aged 20 to 80 years with orthopedic implants who meet the inclusion criteria.

All enrolled patients will be randomly assigned to treatment groups using an online-generated randomization sequence. **Methods** that are going to be used for tracking the signs are: questionnaires, centimeter and goniometry evaluation, pain according to VAS (Visual Analogue Scale), at five different periods for patients of the eight groups. Statistical methods will be used to process the data and analyze the results. Patients will be divided initially into groups according to the anatomical area where the implant is placed and the joint contracture – shoulder, elbow, knee, and ankle. Patients from each group will be randomly assigned to one of two treatment groups – kinesiotherapy and MLS laser treatment or kinesiotherapy and deep oscillation treatment.

Expected results that patients in the eight treatment groups with orthopedic implants will have both short-term and long-term improvement of:

- functional status and level of pain questionnaires;
- centimeters at the four moments for each research joint;
- goniometry of each research joint;
- spontaneous pain in the VAS.

Achieved results: Patients in the eight treatment groups have both short-term and long-term improvement of functional status and level of pain questionnaires, centimeters at the four moments for each research joint, goniometry of each research joint and spontaneous pain in the VAS. The comparative analysis between the two therapeutic programs did not report a statistically significant difference in one of the methods.

When it comes to public health, Deep Oscillation and MLS laser therapy can significantly impact treating symptoms in patients with orthopedic implants in their upper and lower limbs. This can lead to a shorter period of forced rest and help prevent complications from operative treatment. It is recommended that longer-term results be followed to establish the statistically significant superiority of one of the complex therapies we applied.