



Fund “Nauka” Project № 21005 Resume – Competition-Based Session 2021:

“Creation of infrastructure for high-tech, minimally invasive management of secondary cataracts in intraocular implants and complex pathology of the anterior segment of the eye”

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The project is associated with a finalized one (“Creation of infrastructure for high-tech, minimally invasive treatment of cataracts and complex pathology of the anterior segment of the eye and interactive and distance learning at all academic level”, funded by Fund “Nauka” in 2018) in order to complete the training cycle of graduates, young scientists and ophthalmologists.

In ophthalmology, implantation is widely used, as well as the transplantation of allo- and auto-tissues, cells and products, and patient care is not limited to performing surgery, but is associated with many perioperative procedures. Surgical treatment of cataracts often requires secondary intervention in the late postoperative period, which involves the use of high-tech equipment such as the YAG laser. In combined cases of cataract with glaucoma (phacomorphic glaucoma) the first choice of treatment must include YAG-laser iridotomy.

According to the WHO, worldwide 51% of the population has reversible blindness as a result of cataracts. Bulgaria is among the countries in the EU with the highest incidence of reversible blindness from diseases of the anterior segment of the eye, a topic of interest in the Department of Ophthalmology and Visual Sciences.

In the center, there is a simulator for phacoemulsification, after the training, where young specialists, postgraduates and doctoral students will have the opportunity to participate directly in real surgery. Globally, this is the future of every surgical specialty, thus young specialists and specialists acquire high-tech skills, clear the elements and possible classic mistakes on the simulator, not on the operating table. Thus, the first center in the country will be created, allowing preliminary training of the surgical team (similar to the training of an airplane pilot). This will enable the acceleration and improvement of the training process, minimization of errors, improvement of surgical skills and already established surgeons. An opportunity will be created for raising the qualification and professional growth of staff and training at all levels.

Objective: Creation of high-tech university infrastructure for medical, educational and research work for the prevention and treatment of socially significant diseases of the anterior segment of the eye.

Tasks:

1. Purchase of an advanced system for YAG-laser management of secondary and complicated cataracts;
2. Creation of the first in Bulgaria parallel simulation center with the possibility of distance learning through high-tech equipment for the country and the world;
3. Increasing the efficiency of the treatment of patients with cataracts by using automated, minimally invasive equipment of a new generation;
4. Adequate treatment of patients with complicated cataracts, including management of patients with phacomorphic glaucoma;
5. Modern management of refractive errors in patients after YAG-laser interventions
6. Fight amblyopia by improving the technique of mini-invasive cataract management in children;

Methods:

1. Creation of a modern parallel simulation center with the possibility for distance learning of medical specialists.
2. Building teams for the treatment of patients with intraocular lenses with or without glaucoma through an advanced system of postoperative management, ensuring a safe recovery period and adequate correction of refractive errors.

Achieved results:

1. Acquired Nd:Yag laser system for secondary cataract management with intraocular implants.
2. Increase of the efficiency and improvement of the treatment of patients operated on cataract with or without glaucoma;
3. Successful management of postoperative complications in patients with complicated cataracts;
4. Improving the visual rehabilitation and quality of life of patients;
5. Significantly improving the quality of training and enabling trainees to improve their skills.