



Fund “Nauka” Project № 18006 Resume

“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 levels”

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Introduction: According to the WHO, worldwide 51% of the population has reversible blindness because 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.

Modern cataract surgery requires maximum sparing of the surrounding tissues and increasingly precise technique of the operator, equipment and consumables.

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

Methods: Surgical treatment of patients, including adults and children with reversible blindness and complicated cataracts, as well as management of patients after refractive and other corneal surgery, through an advanced phacoemulsification system with several modes of operation and the possibility of torsional fragmentation of the nucleus, providing minimally invasive, energy-optimized surgery with a quick and easy postoperative recovery period. Precise qualitative and quantitative assessment of the actions and condition of the visual analyzer through the automated system for maintaining constant intraocular pressure during the entire operation (by forced irrigation) and a peristaltic pump with the possibility of emulation of the venturi system.

Results: The implementation of the project will lead to the creation of the first and only high-tech university structure in Bulgaria for surgical treatment of reversible, socially significant diseases of the anterior segment of the eye, in particular cataracts with a parallel simulation training center. The structure will also solve the problems of people with complications that require complex, long-term treatment, follow-up and special management. The parallel simulation training center with the possibility for distance learning of students, trainee and residents will support the improvement of the qualification and professional growth of specialists of all levels.

Keywords: cataract surgery, minimally invasive cataract treatment, high-tech university infrastructure, torsional fragmentation.