

The laser is a source of monochromatic coherent light with a high directionality of the light beam. The laser beam has hemostatic properties, produces a bloodless incision while simultaneously destroying the pathogenic microflora and tumor cells in the operating wound.

There are 2 main pathologies of vision-myopia and hypermetropia, the correction of which is carried out using different lasers. Treatment can be as conservative: glasses, gymnastics, nutrition, lighting mode, metered eye strain, etc., and surgical with the use of various laser devices, which in turn are divided into excimer laser units (Lasik method) and femtosecond lasers (PRK method).

LASIK is a unique combination of microsurgical and excimer laser technologies. This is the most "sparing" and effective method that preserves the anatomy of the corneal layers.

PRK-dosed removal of the corneal tissue by evaporation using an excimer laser, is a non-contact action of the excimer laser on the surface layers of the cornea, without affecting other structures of the eye. At the same time, the laser, working in the scanning mode, "smoothes out" and "simulates" its surface, with the advent of "microerosion".

If we compare these two methods, then in the case of hyperopia, LASIK is uniquely the best method. The thin cornea in some cases does not allow correction by LASIK, so the only option is PRK. In the case when the microkeratome can not be used for one reason or another, PRK is again the only option. In all other cases, LASIK is the preferred option.

Every year, several million laser sight correction operations are performed worldwide, and numerous private clinics convince patients of the absolute effectiveness and safety of this procedure, but is it so?

Here are a number of side effects of these operations: dry eye syndrome, the appearance of asterisks and luminous circles before the eyes, the disturbance of night vision, a decrease in contrast sensitivity, a decrease in the ability to distinguish between the outlines of objects and the color range is one of the most important functions of vision. It should be understood that the operation thins the corneal layer and reduces its resistance to external influences.

There is also the risk of appearance and operational complications, which are most often associated with the technical maintenance of the operation: loss of vacuum or its failure during shear, blade defects, incorrectly selected parameters of vacuum rings and stoppers, and postoperative complications, which include a large number of conditions: from inflammatory reactions to subjective dissatisfaction of the patient with the result of the operation.

If you summarize all the complications, deviations from the normal course and side effects of LASIK, you will get 18,61 %. Quite often they are combined in one patient. For example, the uneven slice of a microkeratome with an epithelial defect during surgery can lead to the growth of epithelium in the postoperative period, which in turn can lead to the occurrence of induced or incorrect astigmatism, and, consequently, reduced visual acuity. Complications that affect the visual result in the long-term postoperative period, after reoperations (the total of reoperations – 12,8 %), was 0,67 %.

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PROSPECTS OF USING CPG-DNA AND CYCLIC DINUCLEOTIDES AS VACCINE ADJUVANTS

D. Sinenok¹, A. Shchokolova¹, A. Zinchenko²

*¹Belarusian State University, ISEI BSU,
Minsk, Republic of Belarus*

*²Institute of Microbiology, National Academy of Sciences of Belarus,
Minsk, Republic of Belarus
mr.sinenok@gmail.com*

Owing to insufficient immunogenicity of modern vaccines they need to be complemented with adjuvants. The canonical adjuvants induce a humoral, rather than cellular immune response essential for control of viruses and tumors. It is known that nucleic acid compounds, such as CpG-DNA and cyclic dinucleotides (cyclic diGMP, cyclic diAMP, etc.) are the agents capable to stimulate both humoral and cellular immune response to pathogens and own transformed cells. The prospects of using the above mentioned nucleic acid compounds for treatment of cancer are of particular importance.

Keywords: adjuvants, CpG-DNA, cyclic dinucleotides, *in situ* vaccination

Elaboration of most efficient strategies of disease therapy has always been one of top priority trends in medicine. Growing risk of contracting bacterial and viral pathologies contributes to the relevance of this challenge.

Conventional vaccines incorporate viable attenuated and inactivated microorganisms plus components of microbial cells or viruses. Many live and even inactivated vaccines are not safe. New generation formulas (e. g. DNA and peptide vaccines) are more harmless but less immunogenic, necessitating concerted addition of immunity-enhancing agents – adjuvants to raise their efficiency.

The available adjuvants induce potent humoral and weak cellular immune response, urging the vital need to seek novel more effective substances.

In recent years research interest has been focused on nucleic acid compounds, particularly on prokaryotic DNA enriched with CpG-motifs and on cyclic dinucleotides (cyclic diGMP, cyclic diAMP, etc). They are capable to imitate pathogen attack and activate both humoral and cellular protection systems [1; 2]. The above-mentioned natural substances are relatively labile in blood stream and may be readily degraded by the enzymes. It was suggested to promote their stability by immobilization on nanoparticles composed of Mg, Al-layered double hydroxides [3].

Development of nano-size adjuvants based on nucleic acid compounds may provide the solution of numerous problems in contemporary medicine, like side-effects of many existing vaccines and inadequate immunogenicity of adjuvants toward T-cell immunity.

One of promising therapeutic strategies in oncology is the so-called vaccination *in situ* which consists of a combination of minor-dose irradiation (or chemotherapy) with the intratumoral introduction of CpG-DNA [4]. This procedure causes the release from the dead cancer cells of a full range of tumor-associated antigens. In turn, CpG-DNA conveys the alarm signal to the innate immunity system, resulting in activation of antigen-presenting cells. As a consequence, vaccination *in situ* eliminates the need to seek potential therapeutic antigen or antigen set for individual patient.

In our view, adjuvant system comprising constituents with different mechanism of action represented by plasmid CpG-DNA and cyclic dinucleotide (i. e. cyclic diGMP or cyclic diAMP) has demonstrated realistic, scientifically substantiated claim to be applied in formula of the vaccine capable upon intratumoral injection to induce a personalized therapeutic *in situ* «autovaccination» against individual tumor antigens of the patient.

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THE ANALYSIS OF INCIDENCE OF PREGNANT WOMEN ON THE EXAMPLE OF FRUNZENSKY DISTRICT OF THE CITY OF MINSK

A. Sipach¹, A. Kurepin², V. Lemiasheuski¹, V. Cheplya¹

¹Belarusian State University, ISEI BSU,
Minsk, Republic of Belarus

²Scientific and Practical Center of the National Academy of Sciences of Belarus on Animal Husbandry
Zhodino, Republic of Belarus
arianna.sipach@mail.ru

Long time, influencing the nature, humanity has created environmental problems which have gained global character that has affected the state of health of all mankind. In particular, it became one of factors of incidence of pregnant women. It is known that the adverse state of environment in the different cities causes 20-30 % of complications during pregnancy.

Keywords: pregnant women, health, diseases, dynamics, analysis.