

Significance of Laser Surgery in Eye Diseases

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Abstract: Today, diabetic retinopathy is one of the social diseases that worries the whole world 5% of people on earth suffer from diabetes. 60,000 new patients are registered annually. More than 1,000,000 diabetics will lose their legs. Diabetic retinopathy is diagnosed in every 5 patients with diabetes mellitus. The development of modern technologies, low mobility, non-compliance with a healthy lifestyle leads to an increase in the number of complications of this disease.

Keywords: diabetic retinopathy, retinal laser coagulation.

Introduction: Diabetic retinopathy is a chronic disease characterized by damage to blood vessels in the retina.

1. Insulin deficiency leads to an increase in intracellular sorbitol and fructose, which in turn leads to an increase in osmotic pressure and swelling of capillary endothelial cells and narrowing of the space.
2. An increase in plasma proteins inhibits erythrocyte aggregation and fibrinolysis, which in turn causes the formation of microthrombosis, the death of capillary endothelial cells and pericytes
3. As a result, the permeability of the capillary wall increases, intercellular swelling occurs, the narrowing of the space of the capillary blood vessels leads to retinal ischemia, which leads to the growth of new (neovascular) blood vessels in the retina.

➤ **Diagnosis :**

- Stimulating factor is the height and duration of blood sugar (11 mmol/l fasting blood sugar is 4 times more likely to cause diabetic retinopathy than 7 mmol/l)
- lipid metabolism disorder
- kidney failure
- high blood pressure and constipation
- DR steps:
 - *Neproliferative stage
 - *preproliferative stage
 - *proliferative stage

Treatment:

- Maintain glucose control
- Conservative treatment (its benefit has not been proven and this treatment method has been abandoned in developed countries)
- Laser treatment
- Surgical treatment (in severe complications)

Laser treatment (LSC)

LKS is the most important treatment method for preventing the onset of blindness and treating diabetic retinopathy. LKS prevents the complications that diabetes can cause. LKS does not cure the disease. Practical practice has shown that the laser coagulation process in the last stages of diabetes preserves vision in 60% of patients for 10-12 years. In the early stages, up to 90% of visual acuity is preserved for a long time (without risk factors). Today, three types of lks are used all over the world.

1-Barer lks. 2-Focal lks. 3-panretinal lks (PRP). LKS suggested by American ophthalmologists, according to the information of some authors, efficiency of panretinal LKS is 53-86% and sufficient for stabilization of diabetic retinopathy. In rubeosis pigmentosa, PRP stabilizes 73% of patients.

Mechanism of effect of laser coagulation:

- Stop the growth of neovascular and obliterated blood vessels with high permeability.
- Improve central circulation by reducing ischemic zones
- Reduction of growth factor production by loss of neovascularization replacement of "old" and "aging" tissues with new young cells
- Retinal reinforcement o
- to keep it from moving

Advantages:

- Non-contact (safety for the patient),
- Mineless method (seamless, performed without any cuts).
- Painless. (a surgical procedure that lasts 20-30 minutes). (the patient does not need to be hospitalized for a long time.)
- Local anesthesia (prevents complications caused by general anesthesia) and ease of use at any age.

Recommendation:

- All diabetics, regardless of the stage, must be examined by an ophthalmologist.
- There are no changes in the fundus once a year
- Medium and light forms 2 times a year
- All patients before starting insulin
- Pregnant women and patients with fundus changes once every 3 months

In conclusion, it can be said that the sooner the patients with diabetes mellitus were detected and the laser coagulation was performed according to the instructions in the early stages, the loss of vision could be prevented.

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