

## COMPLICATED PROLIFERATIVE DIABETIC RETINOPATHY, TREATMENT OPTIONS.

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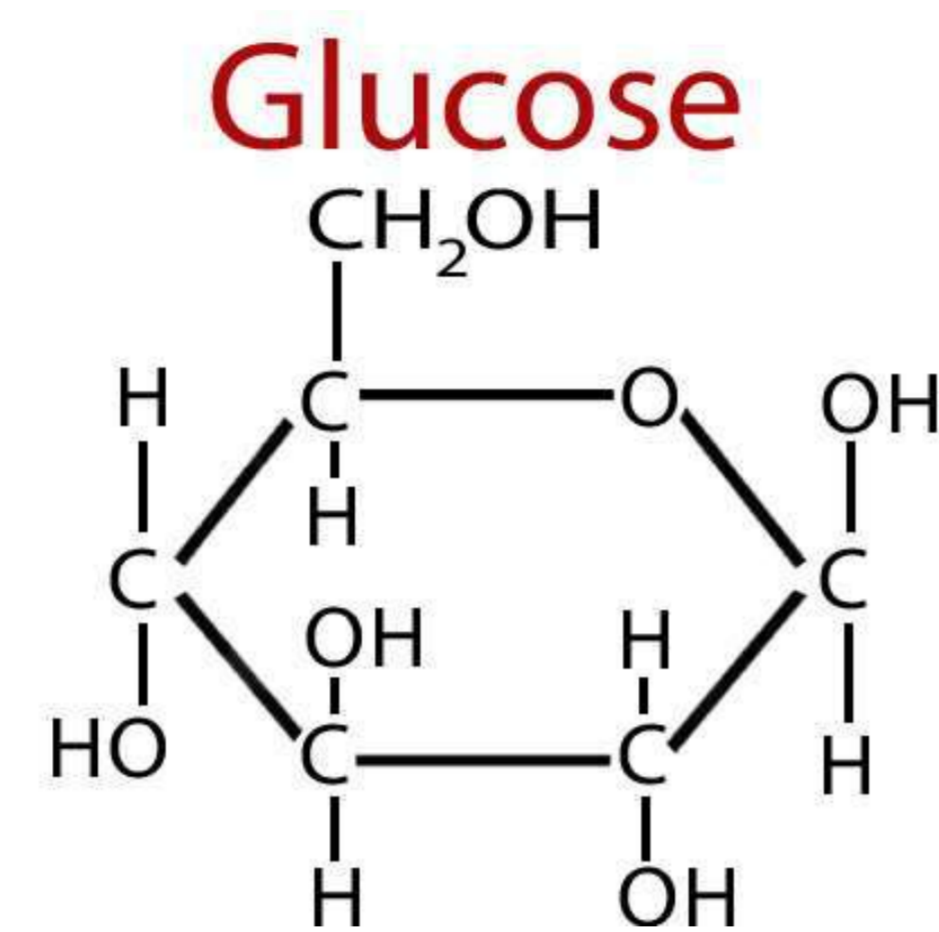
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**Introduction:** Diabetes mellitus is one of the most widespread metabolic pathology, caused by glucose excess, (Fig. 1) affecting about 463 million of adults worldwide. Diabetic retinopathy (DR) is one of the most serious complications, leading to progressive decline and loss of vision. A recent meta-analysis pol (1990-2020) reported that in 2015, 2.6 million people were visually impaired due to DR, a figure projected to rise to 3.2 million in 2020, with a global overall prevalence of 34.6% for any DR.

**Purpose:** To study contemporary methods of treatment and prevention of a complicated diabetic retinopathy.

**Material and methods:** Scientific articles published in international specialized journals during the period of 2016 -2020.



(Fig. 1) Chemical structure of glucose

**Results: Diabetic retinopathy complications:**

Macular edema, vitreous hemorrhage, tractional retinal detachment, neovascular glaucoma, gliosis, etc.

**I. Prevention and general treatment:**

- Improving blood glucose control with oral antidiabetic drugs and insulin (Fig.3), maintaining HbA1c levels under 7.5%. Monitor blood pressure using antihypertensive drugs, as well as correction of hyperlipidemia with statins and fenofibrates.

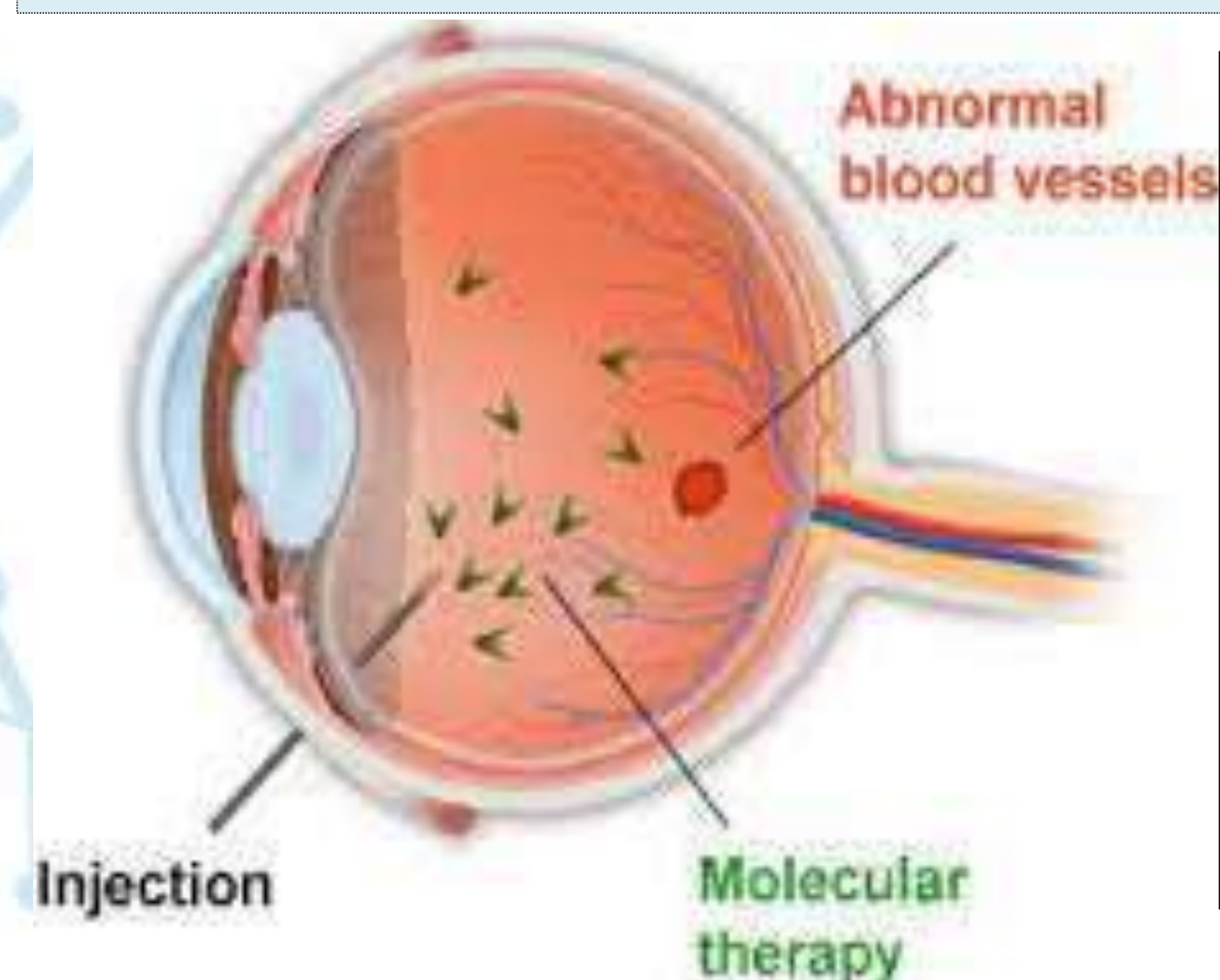
**II. Local specific treatment:**

- *Intraocular injections with anti-VEGF agents* are used to prevent neovascularization by inhibiting the endothelial growth factor responsible for cell proliferation in blood vessels. (Fig.2)
- *Panretinal photocoagulation:* using Argon, Krypton and micropulse diode laser technologies.
- *Vitrectomy* also a surgical procedure used for the vitreous hemorrhage of 1–3 months duration or longer. It is used for scar removing and to restore the retina structure in case of retinal detachment.
- *Combined treatment*

**III. Future therapies:**

- *Adose reductase inhibitor:* The mechanism of action is to reduce the flow of glucose through the polyol pathway leading to inhibition of tissue accumulation of sorbitol and fructose, thus preventing the reduction of redox potentials. This therapy has been successfully tested on diabetic mice and dogs, expecting more in-depth studies on humans.

**Conclusions:** The pharmacological products used in time can prevent the occurrence of complicated proliferative diabetic retinopathy. For direct treatment of complications surgical methods are more effective, these are: panretinal laser photocoagulation, vitrectomy, introcular injection with anti-VEGF.



**Keywords:**

Diabetes mellitus, complicated diabetic retinopathy, treatment.



(Fig. 3) General treatment

(Fig.2) Intraocular injection with anti-VEGF