

Proliferative retinopathy and diabetes: Understanding the connection and implications

Afrah Fahad*

INTRODUCTION

Proliferative retinopathy is a severe form of diabetic retinopathy, a common complication of diabetes that affects the eyes. It involves the growth of abnormal blood vessels in the retina, the light-sensitive tissue at the back of the eye. This condition can lead to significant vision problems and, if left untreated, may result in blindness. Understanding proliferative retinopathy, its causes, symptoms, and management strategies is crucial for individuals with diabetes to prevent and address this serious complication.

DESCRIPTION

Proliferative retinopathy is characterized by the proliferation of new, fragile blood vessels in the retina. These new blood vessels, known as neovascularization, develop as a response to the lack of oxygen (hypoxia) in the retina. The condition is typically a progression from Non-proliferative Diabetic Retinopathy (NPDR), where damage to the retinal blood vessels has already occurred but new blood vessel growth has not yet started. Prolonged high blood glucose levels are a primary cause of diabetic retinopathy, including its proliferative form. Chronic hyperglycemia leads to damage of the retinal blood vessels, triggering a series of events that result in neovascularization. The longer a person has diabetes, the higher the risk of developing proliferative retinopathy. Long-term diabetes increases the likelihood of retinal damage and abnormal blood vessel growth. Inadequate control of blood glucose levels, along with poor management of blood pressure and cholesterol, can accelerate the progression of diabetic retinopathy. High blood pressure exacerbates the damage to retinal blood vessels, increasing the risk of developing proliferative retinopathy. Pregnancy can influence the progression of diabetic retinopathy, especially in women with pre-existing diabetes or those who develop gestational diabetes. Proliferative retinopathy may not present noticeable symptoms in its early stages, making regular eye exams essential for early detection. However, as the condition progresses, individuals may experience blurred or fluctuating vision can occur as abnormal blood

vessels bleed or leak fluid into the retina. Tiny specks or “floaters” in the field of vision may result from bleeding into the vitreous humor, the gel-like substance inside the eye. Distorted or shadowed vision can develop due to the accumulation of fluid or bleeding in the retina. Severe cases of proliferative retinopathy can lead to significant vision loss or blindness if not promptly treated. A comprehensive eye exam is crucial for diagnosing proliferative retinopathy. During a dilated eye exam, an ophthalmologist uses special drops to widen the pupils and examine the retina for signs of neovascularization, bleeding, and other abnormalities. This imaging technique involves injecting a dye into a vein in the arm and taking photographs of the retina as the dye travels through the blood vessels. It helps visualize the extent of neovascularization and areas of leakage. OCT provides cross-sectional images of the retina, allowing for the assessment of fluid accumulation and structural changes in the retinal layers. Maintaining optimal blood glucose levels is fundamental in preventing the progression of diabetic retinopathy. Adhering to a diabetes management plan that includes regular monitoring and medication can help control blood sugar levels effectively. Controlling high blood pressure through lifestyle changes and medications can reduce the risk of retinal damage and progression of proliferative retinopathy. Laser treatment, or panretinal photocoagulation, is a common approach to treating proliferative retinopathy. It involves using a laser to destroy abnormal blood vessels and reduce the risk of vision loss. Medications that inhibit vascular endothelial growth factor (VEGF) can be injected into the eye to reduce neovascularization and stabilize vision. In advanced cases, a surgical procedure called vitrectomy may be necessary to remove the vitreous gel, along with any blood or scar tissue, to restore vision and improve retinal health [1-4].

CONCLUSION

Proliferative retinopathy is a serious complication of diabetes that can lead to significant vision impairment or blindness if not properly managed. Understanding its causes, symptoms, and treatment options is crucial for individuals with diabetes to prevent and address this condition effectively. Through diligent diabetes management, regular eye examinations, and timely medical intervention, the risks associated with proliferative retinopathy can be significantly reduced, helping individuals maintain their vision and overall quality of life.

ACKNOWLEDGEMENT

None.

Department of Health Sciences, Lund University, Sweden

Corresponding author: Afrah Fahad

E-mail: fahadafr@gmail.com

*Received: 31 July 2024, Manuscript No. ajdm-24-146710;
Editor assigned: 02 August 2024, Pre QC No ajdm-24-146710 (PQ); Reviewed: 16 August 2024, QC No ajdm-24-146710; Revised: 21 August 2024, Manuscript No. ajdm-24-146710 (R); Published: 28 August 2024, DOI: 10.54931/AJDM-32.4.1.*

CONFLICT OF INTEREST

The author has nothing to disclose and also state no conflict of interest in the submission of this manuscript.

REFERENCES

1. Islam O, Ninu P, Lakshman S. High fructose-mediated attenuation of insulin receptor signaling does not affect PDGF-induced proliferative signaling in vascular smooth muscle cells. *Eur J Pharmacol*; 791:15:703-710.
2. Denis J, Glenn D, Gardner G. Tie-2Cre mediated deletion of the vitamin D receptor gene leads to improved skeletal muscle insulin sensitivity and glucose tolerance. *J Steroid Biochem Mol Biol*; 164:16:281-286.
3. Patrick N, Piotie P, Wood R. Willingness of people with Type 2 diabetes to start insulin therapy: Evidence from the South African Tshwane Insulin Project (TIP). *Diabetes Res Clin Pract*; 168:10:836-845.
4. Yuka T, Katsuyuki N, Shiro M. Disruption of insulin receptor substrate-2 impairs growth but not insulin function in rats. *J Bio Chem*; 295(33):11914-11927.