



EFFECT OF BLOOD PRESSURE IN PROGRESSION OF DIABETIC RETINOPATHY: A CASE REPORT

General Medicine

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ABSTRACT

Diabetic retinopathy (DR) is a leading cause of visual impairment among patients with long-standing diabetes mellitus. Systemic hypertension is a major modifiable risk factor that accelerates the onset and progression of diabetic retinopathy. Intensive blood glucose control and strict blood pressure management significantly reduce the risk of new-onset diabetic retinopathy and slow the progression of established disease. We present a case of a 64-year-old male with uncontrolled type 2 diabetes mellitus and hypertension who presented with acute visual symptoms and was diagnosed with advanced hypertensive and diabetic retinopathy. This case highlights the strong association between uncontrolled blood pressure and progression of diabetic retinopathy and emphasizes the importance of early and aggressive management of systemic hypertension in diabetic patients.

KEYWORDS

Diabetic retinopathy, Hypertension, Blood pressure, Type 2 diabetes mellitus, Hypertensive retinopathy

INTRODUCTION

Diabetic retinopathy (DR) is a microvascular complication of diabetes mellitus and remains a significant cause of preventable blindness worldwide. The progression of diabetic retinopathy is influenced by multiple systemic factors, among which poor glycemic control and systemic hypertension play a crucial role. Hypertension causes structural and functional changes in retinal vasculature, leading to worsening retinal ischemia and increased risk of proliferative diabetic retinopathy.

Several studies have demonstrated that intensive control of blood glucose levels and systemic hypertension reduces the incidence and progression of diabetic retinopathy. Severe diabetic retinopathy may also serve as an indicator of underlying renal disease, and conversely, renal dysfunction and its treatment can further influence retinal disease progression. This case report aims to highlight the impact of uncontrolled blood pressure on the progression of diabetic retinopathy.

CASE REPORT

A 64-year-old male patient presented to the outpatient department of Pravara Hospital, Loni, with complaints of severe headache and blurring of vision for one day. He was a known case of type 2 diabetes mellitus and hypertension for the past 10 years and was on irregular medication.

On examination, his pulse rate was 88 beats per minute and blood pressure was recorded as 200/110 mmHg. Fundoscopic examination revealed features suggestive of **Grade 3 hypertensive retinopathy** along with **Grade 3 diabetic retinopathy**, involving all four quadrants in both eyes.

Laboratory investigations showed:

- Fasting blood sugar (FBS): 167 mg/dl
- Postprandial blood sugar (PPBS): 146 mg/dl
- HbA1c: 11.5%

The patient was initiated on intensive insulin therapy with Inj. Human Actrapid Insulin (18–18–16 units), oral antidiabetic therapy with Tab Dapagliflozin 10 mg once daily, and antihypertensive therapy with Tab Telma-AM once daily. With treatment, the patient showed symptomatic improvement and stabilization of blood pressure and blood glucose levels. He was subsequently discharged and advised regular follow-up.

DISCUSSION

Hypertension is a well-established risk factor for the development and progression of diabetic retinopathy. Elevated systolic blood pressure has been shown to be a significant predictor of incident diabetic retinopathy, while diastolic blood pressure has borderline significance, particularly in younger-onset diabetic patients.

In patients with long-standing diabetes, uncontrolled hypertension exacerbates retinal microvascular damage by increasing capillary

leakage, endothelial dysfunction, and retinal ischemia. Studies have demonstrated that effective blood pressure control can significantly reduce the progression of diabetic retinopathy independent of glycemic control.

In this case, irregular medication intake and prolonged poor control of both diabetes and hypertension led to advanced retinal changes. Prompt control of blood pressure and blood glucose resulted in clinical improvement, emphasizing the importance of early intervention. This case reinforces the need for routine screening for hypertensive retinopathy in diabetic patients and aggressive management of systemic risk factors.

CONCLUSION

Systemic hypertension plays a crucial role in the progression of diabetic retinopathy. Strict blood pressure control, along with optimal glycemic management, is essential to prevent vision-threatening complications in diabetic patients. Early diagnosis, patient education, and regular follow-up can significantly reduce morbidity associated with diabetic retinopathy.

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