

PREVALENCE, SYSTEMIC AND OCULAR ASSOCIATIONS OF PREDOMINANTLY PERIPHERAL LESIONS (PPL) IN EGYPTIAN PATIENTS WITH EARLY DIABETIC RETINOPATHY

Ahmed Abdel-rzak Souka , Islam Shereen Hamdy , Mohamed Ashraf El-masry, Heba Abdel-aziz Abdel-naby Mahmoud

Department of Ophthalmology, Faculty of Medicine, Alexandria University

Introduction

Diabetes mellitus (DM) is a serious global health concern and Egypt ranks high in terms of DM prevalence. DM is the main reason for visual loss in Egypt, with a high percentage of diabetic individuals suffering from diabetic retinopathy (DR). The modified Airlie House classification has been the gold standard for evaluating DR, but it does not cover the peripheral region of the retina, which can contribute to DR progression. Recent advancements in retinal imaging technology such as ultrawide field (UWF) cameras, have made it possible to capture a larger portion of the retina, including the peripheral areas. Using UWF cameras a subset of eyes with lesions located predominantly beyond the ETDRS fields have been identified. These lesions are termed predominantly peripheral lesions (PPL) and have been associated with an increased risk of DR progression and proliferative diabetic retinopathy (PDR). PPL may also be linked to comorbidities like hypertension, renal disease, anemia, and coronary artery disease (CAD).

Aim of the work

The aim of this work was to evaluate the prevalence of predominantly peripheral lesions in a population of Egyptian patients with early diabetic retinopathy and its association with ocular and systemic factors.

Patients and Methods

The study was a retrospective study that included Egyptian patients 18 years of age and older with early DR who had UWF color images acquired using the Optos® California from 1/2/2022 to 31/7/2022 at I Care reading center, Alexandria, Egypt. For each patient, two 200-degree non-stereoscopic on-axis images were acquired. Exclusion criteria included patients unable to be imaged, those who exhibit no signs of DR, patients with severe NPDR or PDR, and those who have received anti-VEGF injections within the past 6 months before imaging. Furthermore, ungradable UWF images and patients with other retinal pathologies that limit DR grading were excluded. Predominantly peripheral lesions (PPL) and DR severity were graded from UWF color images by certified retinal image graders. For DR grading the ETDRS classification system was used. PPL were graded in each peripheral field individually (fields 3,4,5,6 and 7). Fields with 50% or more DR lesions in the extended peripheral field compared to its respective ETDRS field were graded as having PPL.

Only one field in an eye was required to grade the entire eye as having PPL. Ocular and systemic factors acquired before imaging were obtained from the patients' records.

Results

Table (1):Relation between PPL and diabetic retinopathy severity (n = 1384)

	PPL						p
	Absent (n = 920)		Present (n = 464)		Total (n = 1384)		
	No.	%	No.	%	No.	%	
Diabetic retinopathy severity							
Mild NPDR	523	62.7	311	37.3	834	100.0	<0.001*
Moderate NPDR	397	72.2	153	27.8	550	100.0	

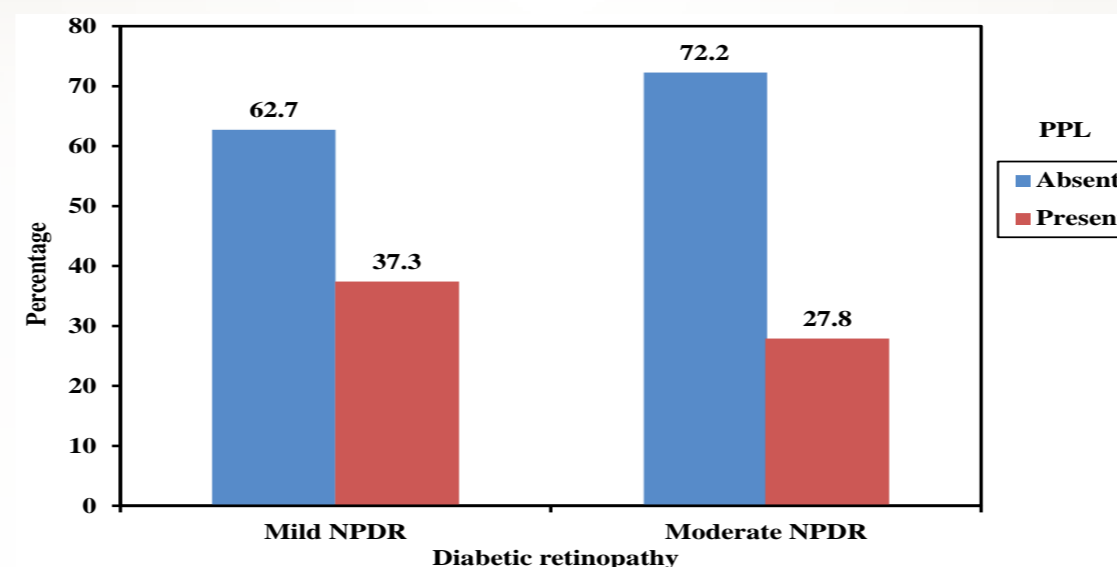


Figure (1):Relation between the presence of PPL and diabetic retinopathy severity (n = 1384)

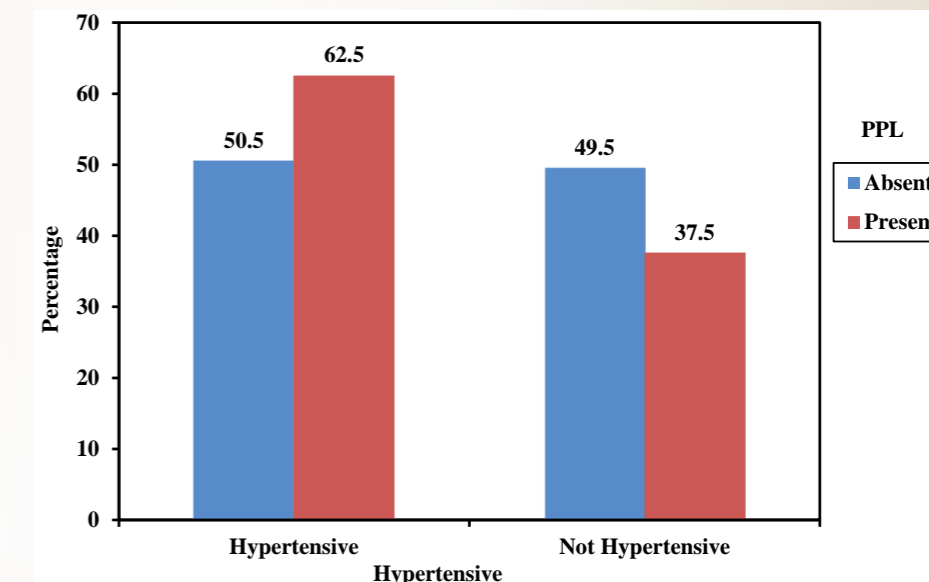


Figure (2):Relation between hypertension and PPL (n = 1384)

Conclusion

The prevalence of PPL in eyes with mild and moderate NPDR in the Egyptian population was 33.5%. PPL were associated with a longer duration of DM, better A1c control, hypertension, and a lower risk of neuropathy. Furthermore, eyes with PPL were more likely to have mild NPDR, less likely to have DME, and more likely to have peripheral chorioretinal degenerations and WWOP.