

VITREO RETINA

Relationship between platelet indices and diabetic retinopathy in patients with type 2 diabetes mellitus: a hospital-based prospective study

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Background: Diabetic retinopathy (DR) is the most common microvascular complication of Type 2 diabetes mellitus (T2DM) patients.^{1,2} Increased platelet activity is an important pathogenic factor. Platelet count (PLT), mean platelet volume (MPV) and platelet distribution

width (PDW) are important indices that reflect platelet activity.³⁻⁶ These indices may serve as measures associated with the development and progression of DR. This study was aimed at determining the relationship between platelet indices and diabetic retinopathy in patients with type 2 diabetes mellitus.

Methods: A cross-sectional study was conducted on 181 T2DM participants under the Tenets of the Declaration of Helsinki.⁷ Ethical clearance for this study was obtained from the University of Calabar Teaching Hospital Health Research Ethics Committee, and written informed consent was obtained from each of the eligible participants. After fundoscopic examination, participants were divided into two groups: T2DM with DR and T2DM without DR. Their PLT, MPV and PDW were assayed. Statistical analyses, including Chi-square test, Student T-test, and binary logistic regression, were performed using Statistical Package for the Social Sciences Version 25.0 (Chicago, IL).

Results: The T2DM patients were aged 35 to 80 years, with a mean age of 56.4±10.9 years. There were more females than males, with a ratio of 3:1. The PLT, MPV and PDW were significantly higher among type 2 diabetes mellitus with DR as compared with type 2 diabetes mellitus without DR (Table 1). On regression analysis, elevated PDW was found as an independent determinant for the likelihood of diabetic retinopathy (Odds ratio: 1.259; 95% confidence interval: 1.081-1.466; p = 0.003).

Table 1: Relationship between platelet parameters and diabetic retinopathy among study participants

Variable	Diabetic retinopathy		Total N=181	T-test	p-value
	Retinopathy Absent n=155	Retinopathy Present n=26			
Mean platelet volume (fL)	9.6±4.2	11.1±2.6	9.9±4.1	2.308	0.025*
Mean platelet count (mL)	198.0±81.6	252.1±100.4	205.8±86.4	3.023	0.003*
Mean platelet distribution width (fL)	12.4±3.5	16.2±3.0	12.9±3.7	5.175	<0.001*

*statistically significant

Conclusion: The study demonstrated that elevated levels of PLT, MPV and PDW were significantly associated with the development of DR. However, PDW appears to be a more likely predictor of DR in T2DM. We hold the view that the utility of these platelet indices as hemorheological markers of DR makes potential sense for early diagnosis and monitoring of DR.

References

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A case of central retinal vein occlusion associated with retrobulbar optic neuritis

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Background: Central retinal vein occlusion (CRVO) secondary to retrobulbar optic neuritis is a rare manifestation, and we did not find a reported case from Nigeria in the literature. There are very few reported cases of both pathologies co-existing in the same patient.¹⁻³

Clinical Presentation: A 58-year-old gentleman, a known glaucoma patient, presented in our clinic with a one-hour history of painless, sudden loss of vision in the left eye. One month prior to the loss of vision, his eye felt heavy, but there was no redness, no pain on ocular movement or reduction in vision. On presentation to the clinic, we examined a middle-aged, healthy-looking man; he had a blood pressure of 130/70 mmHg, and all other aspects of his systemic examination, including the neurological examination, were normal, apart from the ocular examination. Visual acuity was 6/6 in the right eye and counting fingers at 3m (3MCF) in the left eye; intraocular pressures were 20 and 22 mmHg, respectively. His right ocular examination findings were normal. On the left, there was a relative afferent pupillary defect (RAPD), and posterior segment examination revealed a pale disc and cup disc ratio of 0.75, with distinct margins but dilated tortuous venules in all quadrants with mild retinal haemorrhages (Figure 1). Color desaturation was 100:30 and light appreciation was 100:20 in the right and left eyes, respectively. Fundus fluorescein angiography showed a delay in venule filling in all quadrants, worse inferotemporally. There was no area of capillary dropout and no feature suggestive of macula oedema (Figure 2); however, the late images showed hyperfluorescence (Figure 3) in the disc, suggesting an inflammatory process, i.e. retrobulbar neuritis, in the left eye. The optical coherence tomography showed no