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Prevention of ocular morbidity in diabetic chronic kidney disease with respect to correction of anemia

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Objectives : Retinopathy is an established microvascular complication of type 2 diabetes mellitus. Anaemia is considered as an independent risk factor for the development of diabetic retinopathy (DR) in patients with chronic kidney disease (CKD). Retinopathy increases morbidity in patients with diabetes. This study is done to find out correlation between level of haemoglobin (Hb) and retinopathy in patients of diabetic CKD.

Methods : In this study, total of 354 patients with diabetic CKD having retinopathy included. Haemoglobin levels were calculated and stages of retinopathy were determined using fundus photography. Based on haemoglobin levels patients were divided into two groups: having normal haemoglobin (non-anaemic) and having low haemoglobin levels (anaemic). We compared the stages of diabetic retinopathy in both the groups and correlated them with the level of haemoglobin/degree of anaemia.

Results : Among 354 patients of DR, 210(59%) patients were anaemic. Out of the anaemia group, patients having mild, moderate and severe anaemia were 114(54%), 61(29%) and 35(17%) respectively. Mean HB level of anaemic and non-anaemic groups were 9.33 ± 1.32 gm/dl and 12.48 ± 1.48 gm/dl respectively. In the anaemic group, patients having NPDR and PDR were 67(32%) and 143(68%) respectively. Among the non-anaemic group patients having NPDR and PDR were 106(74%) and 38(26%) respectively. PDR was more in anaemic group compared to non-anaemic group with statistical significance of $p < 0.0001$ calculated using chi square test.

Conclusions : It shows that diabetic CKD patients having lower level of haemoglobin have advanced stages of retinopathy and correction of anaemia slows down the progression of DR which improves the ocular morbidity in CKD patients.

Keywords : CKD- chronic kidney disease, NPDR- non proliferative diabetic retinopathy, PDR - proliferative diabetic retinopathy