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Comparison of severity of retinopathy in diabetic vs. non-diabetic CKD patients

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The global burden of Chronic Kidney Disease has increased in recent years and its major causes are increased sedentary lifestyle practices along with growing numbers of diabetics, hypertensive and obese people. Retinopathy is defined as the presence abnormal change in the micro vessels of the eye. These abnormal changes can predict the micro vascular changes in other vital organs of body which usually share a similar morphological pattern. Retinopathy is being considered as a predictor as early predictor a vascular change, as it can prematurely detect micro vascular abnormalities in, vital organs that have a micro vascular structure similar to the retina. Reasonable amount of research work has been done to study the association between retinopathy and CKD. It is now a proven fact that the type of retinopathy and its severity have a directly proportionate relation with the progression of CKD or decline eGFR in both diabetics and non-diabetic patients. But the proliferation rate may differ in both. The aim is to establish a positive association between the severity and progression of retinal micro vascular changes, and different stages of Chronic Kidney Disease, in diabetic and non-diabetic patients. It is a cross-sectional comparative study of 6 months duration performed at Department of Nephrology and Department of Ophthalmology in Pakistan Institute of Medical Sciences (PIMS), Islamabad. Total of 86 participants were included in this study and these were equally divided into two groups. Group-A included 43 diabetics patients with 20 (46.5%) males and 23 (53.5%) females. Group-B included 43 non-diabetic patients with 22 (51.2%) males and 21 (48.8%) females. In both groups the minimum age was 28 years maximum age was 45 years mean age was 37 years with STD of + 4.24 in group A and + 4.33 in group B. Mean duration of diabetes was 11.58 years with STD + 2.81. In group-A 34 patients had retinopathy and in group-B 24 had retinopathy. A total of 39(67%) patients had Diabetic Retinopathy, 11(19%) had hypertensive changes and 8(11%) had retinal changes due to other causes. In both groups those with retinal changes had considerable decline in eGFR. In group-A 13 (30.2%) and in group-B 15 (34.9%) had eGFR of 15-44 mL/min/1.73 m². Followed by 05(11.6%) patients in group-A and 08(18.6%) patients in group-B who had eGFR 30 – 44 mL/min/1.73 m². P-value was not significant. Furthermore, type of retinopathy and its severity was also compared with various stages of CKD. 13 patients had mild and 3 had moderate severity of hypertensive retinopathy with no significant p value in both groups. Similarly, diabetic changes were very mild in 11, mild in 14 and moderate in 13 patients in both study groups, with no significant p value. Retinal changes can occur prior to the progression of CKD and it can be an independent major morbidity factor in both diabetic and non-diabetic CKD patients. There is a positive association of severity of retinopathy and eGFR in patients with CKD and our research efforts have proved it. Diabetes is an additional factor along with CKD because of its pathological effects on micro vasculature of the body. Our study showed that there is slight difference in retinal microvasculature abnormalities when compared in diabetic and non-diabetic CKD patients. At last the retinopathy risk is 4 times higher in patients with CKD vs. those without CKD. We recommended the routine retinal examination of all diabetic or non-diabetic CKD patients in Asian population, which have different etiology of CKD from other parts of world, and more research work for early detection of retinopathy as it could be a preventive tool for the progression of CKD.

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