

# Diabetic Retinopathy And Early Diabetic Nephropathy In Diabetes Mellitus

<sup>1</sup>S.Arul Murugan\*, <sup>2</sup>T. Vijhaya Priya, <sup>3</sup>L.Vijayasundaram

## ABSTRACT

Diabetic retinopathy is an important cause of preventable blindness in India. In this study we aimed to identify its relationship to early nephropathy. This study confirms the association between microalbuminuria and retinopathy. Hence microalbuminuria can be taken as reliable early predictor of retinopathy. But the same time absence of microalbuminuria will not rule out retinopathy.

**KEY WORDS:** Diabetes, Retinopathy, Microalbuminuria

## Introduction

Diabetes is a common metabolic disorder According to the International Diabetes Federation, 61.3 million people in India had diabetes in 2011. That figure is projected to rise to 101.2 million by 2030. As the prevalence of diabetes increases the incidence of its complications like nephropathy, retinopathy and neuropathy increases [1-3]. Diabetic Retinopathy is one of the leading causes of preventable blindness in India. By early

detection and intervention we can prevent progression to blindness. Many studies have proven the association between overt Diabetic Nephropathy and Diabetic Retinopathy [4-7]. Purpose of this study is to find the association between diabetic retinopathy and early nephropathy in diabetics without other risk factors.

## Materials and Methods

This is a cross sectional investigation conducted in Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry. Patients were recruited from outpatient Department and urine spot microalbuminuria was tested using Microl card Method. Thirty patients with microalbuminuria with spot urine albumin in the range of 30 to 300 mg/dl were compared with thirty diabetics without microalbuminuria. Patients with hypertension, dyslipidemia, smoking, overt nephropathy, coronary artery disease and duration of diabetes more than 10 years were excluded. Ophthalmological examination was conducted

<sup>1</sup>Assistant Professor of General Medicine,  
Sri Lakshmi Narayana Institute of Medical Sciences,  
Osudu, Puducherry- 605502,

<sup>2</sup>Assistant Professor of Ophthalmology,  
Indira Gandhi Medical College and Research Institute,  
Vazhudavur Road, Kadirkamam,  
Puducherry- 605 009,

<sup>3</sup>Professor of General Medicine,  
Sri Lakshmi Narayana Institute of Medical Sciences,  
Osudu, Puducherry- 605502.

### \*Corresponding Author

Dr.S.Arul Murugan,  
Assistant Professor of General Medicine,  
Sri Lakshmi Narayana Institute of Medical Sciences,  
Puducherry-605502, India.

with slit lamp with 90D lens and indirect ophthalmoscopy. Staging and the severity of diabetic retinopathy was made using Early Treatment Diabetic Retinopathy Study scales. Patients were divided into those having mild non proliferative diabetic retinopathy , moderate non proliferative diabetic retinopathy, severe non proliferative diabetic retinopathy , very severe non proliferative diabetic retinopathy, early proliferative diabetic retinopathy and high risk proliferative diabetic retinopathy with or without clinically significant macular edema. SPSS software was used to analyze the statistics.

## Results

Among the thirty patients with microalbuminuria, four patients had clinically significant macular edema, two patients had moderate non proliferative diabetic retinopathy, two patients had severe non proliferative diabetic retinopathy and one had high risk proliferative diabetic retinopathy. Totally nine patients had diabetic retinopathy of various stages. Among the thirty patients without microalbuminuria one patients had moderate non proliferative diabetic retinopathy, two patients had mild non proliferative diabetic retinopathy and one had clinically significant macular edema. None of the patients were found to have proliferative diabetic retinopathy. Totally four patients had diabetic retinopathy of various stages.

## Conclusion

This study confirms the strong association of microalbuminuria with diabetic retinopathy. Patients with microalbuminuria have two and half times higher incidence of diabetic retinopathy than patients without microalbuminuria. Microalbuminuria can be taken as reliable predictor of diabetic

retinopathy[8-10]. At the same time these data warns that absence of microalbuminuria will not rule out the presence of diabetic retinopathy.

## References

1. Padmaja K, Rani. 2011. Albuminuria and Diabetic Retinopathy in Type 2 Diabetes Mellitus Sankara Nethralaya Diabetic Retinopathy Epidemiology And Molecular Genetic Study (SN-DREAMS, report 12)-Diabetology & Metabolic Syndrome, 3:9
2. Rema M, Pradeepa R. 2007. Diabetic retinopathy: An Indian perspective. Indian J Med Res, 125: 297-310.
3. Cruickshanks KJ, Ritter LL, Klein R, Moss SE. 1993. The association of microalbuminuria with diabetic retinopathy. The Wisconsin Epidemiologic Study of Diabetic Retinopathy. Ophthalmology. 1993; 100: 862 - 867.
4. Microalbuminuria and diabetic retinopathy in type 2 diabetic patients: From risk association to risk prediction - Journal of Diabetes Investigation Volume 4, Issue 1
5. More Impact of Microalbuminuria on Retinopathy Than Moderately Reduced GFR Among Type 2 Diabetic Patients. -Yu-Hsin Chen, MD - Published online before print February 14, 2012, doi: 10.2337/dc11-1955
6. Masoud R, Manaviat. 2004. Retinopathy and microalbuminuria in type II diabetic patients. BMC Ophthalmology, 4:9.
7. Crimi S, Cipolli D. 1995. Microalbuminuria and severity of diabetic retinopathy in type 1 diabetic patients: association and relationship with some risk factors. Diabete Metab, 21:440-445.
8. Mogensen CE, Vigstrup J. 1985. Microalbuminuria Predicts Proliferative Diabetic Retinopathy, The Lancet, 325: 1512 - 1513.
9. Padmaja K Rani. 2011. Albuminuria and Diabetic Retinopathy in Type 2 Diabetes Mellitus Sankara Nethralaya Diabetic Retinopathy Epidemiology And Molecular Genetic Study (SN-DREAMS, report 12). Diabetology and Metabolic Syndrome, 3:9.
10. Singh SK. 2001. Diabetic retinopathy and microalbuminuria in lean type 2 diabetes mellitus. J Assoc Physicians India, 49:439 - 441.