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Short Communication

Modification of Risk Factors- Newer Way to Control Visual Disability from Diabetic Retinopathy

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Abstract: Diabetic retinopathy is a chronic retinal disorder that develops as a complication of diabetes mellitus. The aim of the present study was to identify modifiable risk factors of diabetic retinopathy in type 2 Diabetes mellitus and correlation with severity of diabetic retinopathy. From the present study we conclude that optimized control of risk factors i.e glucose level, hypertension, serum creatinine, affecting onset and/or progression of diabetic retinopathy (DR), through intensive, multidisciplinary, healthcare team-based approach, can markedly reduce impairment of vision due to DR and thereby improving lifestyle and overcoming financial burden of our country.
Keywords: Diabetes, Retinopathy, Vision, Risk factors

INTRODUCTION

Diabetic retinopathy is a chronic retinal disorder that eventually develops, to some degree, in all patients with diabetes mellitus. There is gradually progressive damage to the retinal microvasculature [1]. In India, prevalence of diabetes mellitus was found to be 2.4% in rural and 4-11.6% in rural population [2].

The duration of diabetes is probably the strongest predictor for development and progression of diabetic retinopathy (DR) [3]. Hypertension [4-6], hyperlipidemia [4, 6], hyperlipoproteinemia, renal disease, age and BMI [6] are other risk factors associated with the development and progression of DR.

Sight threatening DR if not detected early can lead to visual impairment and sometimes permanent blindness thereby increasing the financial burden of our county. Therefore, lifelong evaluation for DR by screening of diabetic individuals is necessary. Direct ophthalmoscopy alone has significant limitations and fails to meet the 80% sensitivity and specificity targets [7, 8]. Indirect ophthalmoscopy and slit limp biomicroscopy together though effective require an elaborate quality control.

Retinal photography through dilated pupils has proved highly effective, achieving sensitivities & specificities of 89% and 86% respectively [7, 8]. Retinal image can be used in patient education and for maintaining records.

Aim

To identify modifiable risk factors of diabetic retinopathy in type 2 Diabetes mellitus and correlation with severity of diabetic retinopathy.

MATERIALS AND METHODS

A cross-sectional prospective study of 350 patients (692 eyes) was conducted in our hospital, which is a tertiary care centre from April 2011 to 2013. Detailed fundus examination was done by direct ophthalmoscopy, indirect ophthalmoscopy and slit lamp biomicroscopy with 90D lens. Following this, fundus photographs were taken by mydriatic 45 degrees digital fundus camera. Sensitivity [9] was defined as number of eyes whose digital diagnosis was same as clinical diagnosis. Specificity [9] was rate of true negatives, where both digital and clinical diagnosis did not demonstrate any lesion.

Inclusion criteria

Diagnosed cases of diabetes mellitus type II, Patients with clear media allowing proper visualization of fundus, Patients with full pupillary dilatation, No treatment for diabetic retinopathy (laser/intravitreal injections)

Exclusion criteria

Type I diabetes mellitus, Advanced diabetic eye disease, Diagnosed and treated cases of DR, glaucoma

Risk factors assessed- glycaemic control, hypertension, renal disease, hyperlipidemia, and obesity.

RESULTS

In the present study**,** prevalence of Diabetic retinopathy was 35.71%. Age distribution ranged from 32 to 85years with maximum patients between 60-69 years. Age was found to be insignificant. Family history of diabetes was found to be an independent risk factor.

After analysis, duration of diabetes; blood glucose levels; glycosylated haemoglobin; serum creatinine and blood urea; hypertension; serum cholesterol were found to be independent risk factors associated with diabetic retinopathy. Deranged lipid profile was associated with macular edema. These risk factors had positive and significant association with the presence of diabetic retinopathy. Of these, duration of diabetes and control of blood sugar levels were the two most important risk factors for development of DR.

CONCLUSION

- Screening with digital fundus camera provides high screening coverage feasible in hospital setting with high sensitivity and specificity [10-12]
- Patients with more duration (> 5 years) of diabetes mellitus and positive family history should definitely be screened for diabetic retinopathy
- Optimized control of risk factors i.e glucose level, hypertension, serum creatinine, affecting onset and/or progression of DR, through intensive, multidisciplinary, healthcare team-based approach, can markedly reduce impairment of vision due to DR and thereby improving lifestyle and overcoming financial burden of our country.

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