Commentary: Understanding diabetic retinopathy trends in India: Lessons learnt and future implications

Diabetes has become a major public health problem in India. Diabetic retinopathy (DR) is an important cause of avoidable blindness. It is imperative to understand that DR has a chronic course with a long latent phase. Up to 98% of DR related visual impairment can be avoided by early screening and prompt management. DR prevalence is increasing at an alarming rate in India. The exact epidemiology of DR remains understated due to the lack of dilated fundus examinations in routine ophthalmic surveys.[1]

The study done by Das *et al*.[2] brings out the unique zonal variation in the prevalence of diabetic retinopathy and its complications in patients suffering from type-2 diabetes mellitus who attended different popular healthcare setups across India. It is one of the initial studies that have tried to highlight the regional variations in DR patient load at various urban hospitals across India. They found an overall DR prevalence of 32% among diabetic patients which is quite high. It may be due to the fact that all enrolment centers were popular urban tertiary/regional hospitals. The study also revealed that the eastern region of India has a higher proportion of patients who suffered from diabetic retinopathy and related blindness than any other region despite having a lower prevalence of diabetes in the region. A higher rate of DR was also reported from studies in Bangladesh as well suggesting a possible role of some local environmental factors or genetic influences.[3] The increased prevalence of DR related complications in this region can also be due to various factors. Poor health-seeking behavior of diabetic patients can be one of the major reasons. Unawareness about the fact that diabetes can affect retina resulting in ignorance regarding diabetic screening is the major factor behind this behavior of patients. In a hospital-based study in Mumbai, it was found that DR prevalence was around 65% in type-2 diabetic patients and around 63% of these patients were unaware of ocular complications of diabetes till they developed vision loss.[4] Another reason can be lack of accessible and affordable DR screening and management facilities. There are various barriers which can prevent patients to access timely health check-ups. Distance to healthcare facility, financial constraints, educational background, and associated co-morbidities make it difficult for the patient and their relatives to access healthcare services.[1] There is a high prevalence of systemic co-morbidities in DR patients like hypertension, coronary artery disease, stroke, and renal diseases, which is also reported in the current study.[2] These unique challenges make diabetic patients one of the most vulnerable communities in terms of morbidity, mortality, and quality of life. We have witnessed this crisis situation during the current COVID-19 pandemic when most of the patients coming to vitreo-retina division of our tertiary eye care facility after lockdown were suffering from end-stage complications of diabetes including diabetic retinopathy.[5,6] Most of them worsened during lockdown due to lack of timely supervised medical care.

The community-based surveys show less prevalence of DR and its complications among diabetics than hospital-based surveys. Recently, R.P. Centre for Ophthalmic Sciences conducted the National Diabetic Retinopathy RAAB Survey 2015-2019, under the aegis of the Ministry of Health and Family Welfare, Govt India. The prevalence of diabetic retinopathy among diabetics came out to be 16.9%, a reasonably high figure for a RAAB survey.[7] This calls for the formulation of an integrated DR screening and management program within the existing healthcare system in India.[1] Currently, the National Program for Control of Blindness (NPCB) relies only on opportunistic screening of DR in high-risk populations in India which emphasizes on early diagnosis, referral, and management at every possible point of contact of the patient with the healthcare provider.

The ray of hope comes from the experiences of other countries in managing DR in their populations. Interestingly, the prevalence of diabetic retinopathy and its complications has been reportedly reduced in residents of Thailand (a South Asian country) from 6.9% in 2014 to 5% in 2019.[8] In 2003, it was around 31% which stimulated the authorities to formulate Thailand diabetic registry project and universal health coverage policy which covered more than 99% of residents by 2013. The authors have attributed this policy change which has led to improved, accessible, and comprehensive diabetic care to be the primary reason for this gradual decrease in DR-related disease burden.

This calls for an increasing need to establish a nationwide diabetic retinopathy screening and research network in our country. Efforts must also be directed toward building of

national registry of diabetic patients.[1] Policy planners should be encouraged to focus on patient targeted programs involving more of DR outreach screening facilities. In resource-limited Indian settings, every effort must be put to ensure active involvement of at least every ophthalmic personnel in the DR screening program.[9] To ensure standardized grading and management of DR, adequate reforms and innovations must be incorporated into the academic curriculum of ophthalmologists and optometrists.[10-12] Incorporating newer technologies like smartphone-based screening, portable non-mydriatic cameras, and artificial intelligence can be a game changer as they will increase the scope of DR screening to underserved areas.[13,14]

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Access this article online

Quick Response Code:

Website: www.ijo.in

DOI: 10.4103/ijo.IJO_757_21

Cite this article as: Agarwal D, Kumar A, Kumar A. Commentary: Understanding diabetic retinopathy trends in India: Lessons learnt and future implications. Indian J Ophthalmol 2021;69:3101-2.