World Diabetes Day 2018: Battling the Emerging Epidemic of Diabetic Retinopathy

Sir,

With the theme of "Family and Diabetes" for 2018 and 2019, we are edging closer towards the World Diabetes Day, scheduled to be observed on November 14, 2018. An official United Nations Day since 2006, World Diabetes Day organizes a worldwide campaign, aiming to reach out to over 1 billion people in more than 160 countries. The objective of the global campaign is to draw international attention to the paramount issues related to the diabetic world.[1] This year, a two-year timeframe has been chosen to ensure the best possible planning, development, promotion, and participation to increase public awareness about emerging epidemic of diabetes.

The international diabetic federation (IDF) is expected to develop materials and actions that would contribute to raising awareness pertinent to the impact of diabetes on the family and associated network of the affected. Moreover, this two-year timeframe endeavors to promote the role of the family in caring, preventing and educating to fight against diabetes and associated systemic complications.

India is deemed as the world's capital of diabetes. The diabetic population in the country is close to hitting the alarming mark of 69.9 million by 2025 and 80 million by 2030. This denotes that the developing country is expected to witness an increase of 266%. The statistics recently accumulated showcase that culture of diabetes is more prevalent in the urban areas as 28% of the population living in cities are affected, whereas 5% of the rural population are positive with diabetes mellitus.

Diabetes has become the fifth leading cause of blindness across the globe. Diabetic retinopathy is one of the major reasons for visual impairment and blindness among the diabetic patients across the globe. The overall population affected by this diabetes-related retinal disease is reported to be 382 million as per the statistics of 2013, and it is expected to cross the number of 592 million by 2025.

The WHO recognizes diabetic retinopathy as a major eye disease that requires urgent attention from professionals and governments. However, according to experts, India has about 12,000 ophthalmologists (approximately 3500 trained retina specialists) against 60 million diabetic patients facing diabetic eye disease. The reason why diabetes is escalating at such a high pace is the fact that one-third of the affected population is not even aware of the fact that they have a chronic condition. This ultimately keeps them from getting timely medical attention. As a result, they develop severe diabetic complications. With such a huge population under the influence of this malicious disease, the systemic complications are bound to occur, in particular diabetic eye disease, diabetic nephropathy, and diabetic foot, etc.

Diabetic retinopathy is one such complication that is affecting nearly 18% of the diabetic population in India. Considering the fact that only a handful of population undergoes regular eye checkups and dilated retinal examination, a majority of the cases remain unaddressed and, hence, this results in worsening of the condition. Diabetic retinopathy is getting more common among the diabetic population in India because there are limited centers (equipped with retinal lasers and vitrectomy machines) as well as limited ophthalmologists (retina specialists) in the country who are trained to diagnose and treat diabetic retinopathy.

A major reason behind this prevalence is the lack of awareness among the patients who fail to achieve timely diagnosis and medical attention. As a result, they develop unnecessary blindness. A diabetic patient is 25 times more vulnerable towards the possibility of getting blind as compared to a healthy individual.

Published epidemiological studies and clinical trials have shown that optimal control of blood glucose level, blood pressure and blood lipids, and hemoglobin can reduce the risk of developing diabetic retinopathy and slow its progression. Timely treatment with retinal laser photocoagulation and increasingly, the appropriate use of intraocular administration of anti-vascular endothelial growth factor (Anti-VeGF) can prevent visual loss in vision-threatening diabetic retinopathy, particularly diabetic macular edema (DME). Since visual loss may not be present in the earlier stages of diabetic retinopathy, regular screening of patients with diabetes is essential to enable early intervention.[2-4]

For the patients of diabetes, it is important to undergo biannual eye (and dilated fundus) examinations and treatment (when necessary) as all eye care organizations across the globe emphasize this. India is suffering tremendously from diabetic retinopathy because of the lack of this approach. With the lack of trained retinal specialists in India and the unaware diabetic population, lack of emphasis by treating physician, the number of affected cases is increasing every day. Another root cause of the prevalence of the disease is that a huge portion of the population is affected that is dispersed across the country, making it almost impossible for the trained professionals to address.[5-7] Communication between treating physicians (diabetologist) and ophthalmologists (retina specialist) as well as timely referral can play a pivotal role in patient care, as it serves as a mechanism for providers to educate one another about patients' disease manifestations, adherence to therapy, and treatment plan of diabetic retinopathy.

To ensure that an equal program of screening for diabetic retinopathy is commenced, it is critical to embrace more efficient methods that reach out to various geographical locations. Accessing the rural population is a big challenge for eye care professionals. Telemedicine is one of the most convenient methods that can be utilized to promulgate awareness as well as diagnosis of diseases such as diabetic retinopathy. This modernized technique is highly beneficial in ensuring timely and efficient screening of retinal diseases, especially when the number of trained professionals is low and the affected population is alarmingly high and widely dispersed.

Societies such as All India Ophthalmologist Society, Academic and Research Committee (AIOS and ARC), vitreo-retinal society of India (VRSI) together with state ophthalmic societies, diabetic association, diabetes awareness interest group and other similar groups and associations play an important role in bringing together the trained and untrained professionals to a mutual platform where they can share their learned experiences, knowledge, and skills. These societies work on a national front,

which brings together ophthalmologists (and physicians) from all parts of India and formulate guidelines to address emerging epidemic of diabetic retinopathy. A short term training of diabetic retinopathy diagnosis and management) done at tertiary care ophthalmic center (such as Aravind Eye Care System, Madurai, India) can also be very helpful to train ophthalmologists as well as optometrists, and ophthalmic assistants to battle against the emerging epidemic of diabetic retinopathy.

While selected tertiary care government institutes in India, (e.g. Dr. R P. Center, AIIMS, New Delhi and Advance Eye Center, PGIMER, Chandigarh) have access to all the recent modalities to manage routine and complex cases of diabetic retinopathy, unfortunately, most of the state run government hospitals do not have adequate facilities for managing cases of diabetic retinopathy. Most health expenditure in India is out of pocket and therefore patients find it difficult to afford the repeated visits to Retina specialists, repeated investigations, lasers and intravitreal anti-VeGF injections. Besides, most patients in India are from poor socio-economic status and when informed that all this treatment and attendant expenditure is unlikely to result in any significant gain in vision, many of them opt out of treatment due to more pressing financial needs in the family. Ophthalmic societies, retinal specialists and ophthalmic industry need to work together to come with innovative methods to decrease the cost of treatment for diabetic retinopathy cases. Government should also make efforts to provide retinal treatment at state run facilities as well, at least in all medical Colleges. The availability of Retina specialists, diagnostic modalities and retinal lasers in Medical Colleges will go a long way in ensuring that optimum treatment is provided to these patients and they do not turn needlessly blind.

The telemedicine screening program can be easily and fruitfully supported by the ophthalmic societies, as they have a vast number of professional members, who can come together to combat against the enormous challenge of diabetic retinopathy. Smart phone can also be used for early detection of diabetic retinopathy. An example includes the Fundus on Phone (FOP) device being developed by Remidio Innovative Solutions in Bangalore. This device is able to 'piggyback' onto a regular smartphone and take high resolution images of the retina. The fundus images can be taken by local health workers in the field, before being sent electronically to ophthalmologists many thousands of miles away to look for early warning signs.

This World Diabetes Day, the individual pledge should be made to endeavor to spread awareness among diabetic population pertinent to the complications of diabetes. Use of artificial intelligence and other innovation are in the progress to facilitate early diagnosis and early intervention to combat vision loss due to diabetes. In next few years, artificial intelligence will greatly ease the pressure in healthcare, especially in India and other countries with large populations, where the resources are insufficient for the screening of diabetic retinopathy due to the large number of patients with diabetes.[8,9] Because of its low operation cost, artificial intelligence can be employed in early screening to reduce the rate of missed diagnoses of diabetic retinopathy in primary hospitals. Use of social media, news papers, awareness lectures by ophthalmologists, physicians, ophthalmic assistants, health care workers can be one such example to share awareness videos and information about diabetes and its associated complications.

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Conflicts of interest

There are no conflicts of interest.

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