Commentary: Targeted high-risk screening for diabetic retinopathy in India: Feasible short-term strategy

Diabetic retinopathy (DR) screening poses multiple challenges in India and requires indigenous innovative solutions.[1,2] DR screening programs have undergone a phenomenal change, making them more accessible, affordable, and personalized. However, most of the approaches, such as universal eye screening of diabetics, are currently not feasible in resource-limited countries. In our settings, most people are also unaware of their diabetic retinopathy status unless they develop sight-threatening complications. This calls for the development of protocols that can predict and help in the early detection of vision-threatening diabetic retinopathy (VTDR), which requires urgent clinical management. This targeted screening approach will be an economical, effective, and sustainable short-term alternative for managing people who suffer from complications of diabetic retinopathy.

The present study conducted by Sen *et al*. is a welcome step in this direction. Based on the analysis of four population-based studies of South India, they found that targeted screening based on high-risk factors (age more than 50 years, longer duration of diabetes (more than 5 years), and systolic blood pressure more than 140 mm Hg) was successful in detecting individuals suffering from VTDR.[3] Various studies have identified several other factors that can also predict VTDR in the population, such as poor glycemic control, obesity, use of insulin/oral hypoglycemic agents, and low monthly family income. Incorporating these risk factors in the currently recommended opportunistic DR screening strategy will increase the yield manyfold in India.[4,5] Prospective multicentric studies are warranted to explore/confirm the utility of this approach and to bring out regional variations.

It is also important to develop risk factor-based prediction models of DR progressing into VTDR for Indian patients. This will help to stratify patients based on their risk of progression and target them effectively. This individualized risk-based assessment will help in providing personalized and optimized screening intervals, reducing the burden on the healthcare system.[6,7] Use of smartphone imaging and artificial intelligence can help bring out meaningful trends based on analysis of large population data.[8-10]

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References

1. Kumar A, Agarwal D, Kumar A. Diabetic retinopathy screening and management in India: Challenges and possible solutions. Indian J Ophthalmol 2021;69:479-81.
2. Agarwal D, Kumar A, Kumar A. Commentary: Training optometrists and allied ophthalmic personnel: Expanding horizon of diabetic retinopathy screening in India. Indian J Ophthalmol 2021;69:659-60.
3. Sen S, Ramasamy K, Vignesh TP, Kannan NB, Sivaprasad S, Rajalakshmi R, *et al*. Identification of risk factors for targeted diabetic retinopathy screening to urgently decrease the rate of blindness in people with diabetes in India. Indian J Ophthalmol 2021;69:3156-64.
4. Alemu Mersha G, Tsegaw Woredekal A, Tilahun Tesfaw M. Sight-threatening diabetic retinopathy and associated risk factors among adult diabetes patients at Debre Tabor General Hospital, Northwest Ethiopia. Clin Ophthalmol Auckl NZ 2020;14:4561-9.
5. Liu Y, Yang J, Tao L, Lv H, Jiang X, Zhang M, *et al*. Risk factors of diabetic retinopathy and sight-threatening diabetic retinopathy: A cross-sectional study of 13 473 patients with type 2 diabetes mellitus in mainland China. BMJ Open 2017;7:e016280.
6. Lund SH, Aspelund T, Kirby P, Russell G, Einarsson S, Palsson O, *et al*. Individualised risk assessment for diabetic retinopathy and optimisation of screening intervals: A scientific approach to reducing healthcare costs. Br J Ophthalmol 2016;100:683-7.
7. García-Fiñana M, Hughes DM, Cheyne CP, Broadbent DM, Wang A, Komárek A, *et al*. Personalized risk-based screening for diabetic retinopathy: A multivariate approach versus the use of stratification rules. Diabetes Obes Metab 2019;21:560-8.
8. Bora A, Balasubramanian S, Babenko B, Virmani S, Venugopalan S, Mitani A, *et al*. Predicting the risk of developing diabetic retinopathy using deep learning. Lancet Digit Health 2021;3:e10-9.
9. Pujari A, Saluja G, Agarwal D, Selvan H, Sharma N. Clinically useful smartphone ophthalmic imaging techniques. Graefes Arch Clin Exp Ophthalmol. 2021;259:279-87.
10. Agarwal D, Kumar A. Commentary: Artificial intelligence in ophthalmology: Potential challenges and way ahead. Indian J Ophthalmol 2020;68:1347-8.

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