

Commentary: Impact of treatment of diabetic macular edema on visual impairment in people with diabetes mellitus in India

The treatment of diabetic macular edema (DME) comprises intravitreal injections, laser photocoagulation, and in some cases control of systemic factors without any active ophthalmic intervention. Currently, intravitreal injections are the mainstay of management of DME and these injections are of different types. The authors of the current study have taken a lot of effort to gather real-life data regarding the management of

DME in India.^[1] There are many relevant findings in this study. First, the details regarding patient management in the current study from 9 centers located in different geographical areas in India provide a good dataset for the national representation.^[1] Second, around 3 out of 4 patients enrolled in the study were males. Prior studies have found that males outnumber females in the healthcare-seeking behavior and expenditure related to health care in India.^[2] Third, every fifth person in this study had a fairly recent-onset diabetes mellitus (DM) of <5 years. Since it is well known that chronic hyperglycemia is a risk factor for DME, it is apt to conclude that these patients developed DM for a significant duration before being diagnosed as diabetic. This emphasizes the need for screening for diabetes in the general population. Fourth, bevacizumab monotherapy was

the most common (38.1%) treatment modality. Among all the anti-VEGF agents, bevacizumab is the commonest choice as it is less expensive. This also brings out the fact that most patients spend the health care expenditure out of their own and hence opt for the least expensive injection. Fifth, less than half of the study patients had their HbA1c checked and only a fifth of them had it normal. It is well established that uncontrolled DM aggravates DME and adversely affects the visual outcome. This emphasizes the need for systemic investigations, importantly HbA1c, during the management of DME.

There are some points where this study could have been stronger. First, the authors have analyzed the morphological types of DME and central retinal thickness and tried to correlate these two biomarkers with the visual outcome. In the recent literature, there is mention of many other OCT biomarkers like hyperreflective dots (HRD) in retina and choroid, disorganization of the retinal inner layers (DRIL), central cholesterol plaques, bridging retinal processes, subfoveal choroidal thickness, photoreceptor outer segment, the integrity of external limiting membrane (ELM) and ellipsoid zone (EZ), taut posterior hyaloid membrane, and choroidal vascularity index.^[3] These OCT biomarkers were not analyzed in this current study. Additionally, the evaluation of macular ischemia by studying the foveal avascular zone was not done in a majority of study subjects. These above-mentioned facts may be the reason for the suboptimal visual gain despite the appreciable anatomical reduction of macular thickness after the management of DME. Second, out of a total of 3767 patients with DME, 1853 patients were diagnosed as treatable DME. This implies that several patients with DME did not require intervention, probably due to better vision and a small magnitude of macular edema. The discussion of recent protocol V of diabetic retinopathy clinical research retina network (DRCR.net) is relevant in this context. The results of the protocol V of DRCR.net showed that among the diabetic patients with center involving DME and good vision, the vision loss did not change significantly between the three treatment arms i.e., aflibercept intravitreal injection or laser procedure or observation.^[4]

There are many future perspectives of this study. First, artificial intelligence (AI) will be widely adopted and will play a major role in the early diagnosis and follow up of DME cases. In the future, outcomes of studies using AI in DME will positively change the management of DME.^[5] Second, there are many studies on working patients, showing more number of days lost due to absenteeism related to diabetes.^[6] Management of DME requires multiple visits to the eye care center and the patient needs to be accompanied by an attendee. Future studies will bring out the working days lost for the patient and attender for the management of DME. This will emphasize the impact of DME on the quality of life of diabetes patients. Third, this study has shown that since the patients have to spend from their pocket, in many cases, there is suboptimal management of DME. Provision of insurance for the management of DME will make the management of DME more optimal. Both the

Government and non-Government agencies should ensure the privilege of insurance coverage for patients with DME.

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