Author's reply

Sir,

We wish to thank the author for reading our article[1] with interest and for the response.[2] We appreciate the author's contribution to the literature, "Dual effect hypothesis of insulin analogues on diabetic retinopathy."

We agree that studies have shown the role of insulin-like growth factor in the pathogenesis of diabetic retinopathy (DR).[3] However, we wish to mention that though there are a few anecdotal reports that some insulin analogs might worsen retinopathy, it has been proven by a randomized controlled trial that there is no evidence of greater risk of the development or progression of DR with insulin glargine.[4]

Many established studies such as the Diabetes Control and Complications Trial (DCCT) (Type 1 diabetes)[5] and the Steno Study (Type 2 diabetes)[6] have shown that long-term, intensified intervention aimed at multiple risk factors, particularly glycemic control, reduces the risk for microvascular events, including retinopathy by about 50%. In the long-term follow-up of the DCCT, the Epidemiology of Diabetes Interventions and Complications, the finding that even 7 years after conclusion of the treatment of the DCCT, retinopathy progression in the original "intensive" control group (treated with three times insulin) continued to be much slower than that in the "conventional" treatment group indicates the importance of tight glycemic control in the prevention and management.

Regarding the mention in the letter that Gadkari *et al*.[7] reported insulin usage as a risk factor for DR in the Indian population, we have also reported similar results in our Chennai Urban Rural Epidemiology Study-Eye Study.[8] The possible explanation is that DR is associated with prolonged uncontrolled hyperglycemia and such patients with Type 2 diabetes are more likely to be treated with insulin along with or without oral hypoglycemic agents (OHA) while those who are under better metabolic control are likely to be continued on OHA. Second, diabetic patients with microvascular

complications such as retinopathy and nephropathy tend to be preferentially treated by physicians with insulin because of the presence of these complications. Hence, it is likely that insulin treatment is the effect and not the cause of the retinopathy. Obviously, more studies need to be done on this subject.

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Conflicts of interest

There are no conflicts of interest.

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