

Effects of Vitamin D deficiency on Diabetic Retinopathy

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This editorial emphasizes effects of vitamin D deficiency on diabetic retinopathy. Vitamin D, a fat-soluble vitamin has anti-oxidant, anti-inflammatory and anti-proliferative functions on all areas of human body including eyes [1]. It plays pivotal role in prevention of diabetic retinopathy via insulin release and hence glucose metabolism and also decrease level of inflammatory cytokines that are up-regulated in diabetic patients. It can inhibit angiogenesis either by direct action on endothelial cells or indirectly via angiogenic-signaling [2].

Diabetic retinopathy is the main cause of visual loss for people aged 20 - 64 years in USA. Deficiency of vitamin D has been associated with impaired insulin secretion, metabolic syndrome and systemic diabetic retinopathy progression. A new meta-analysis of nine large observational studies recommend that there is a noteworthy relationship between vitamin D deficiency and diabetic retinopathy. As indicated by them, statistically significant and quantifiable contrast can be seen in mean serum vitamin D levels between patients with diabetic retinopathy and control groups. They concluded that patients with diabetic retinopathy have a tendency to have vitamin D deficiency, while patients without retinopathy have normal vitamin D level. There is statistically significant association between diabetic retinopathy and vitamin D deficiency with each severity of diabetic retinopathy with a pooled odds ratio (OR) of 1.39 for any type of diabetic retinopathy. Hence, they advise patients having diabetes mellitus who have low vitamin D levels to be screened for diabetic retinopathy [3].

Another study in Pakistan [4], showed 82% had normal to low levels of vitamin D with non-proliferative retinopathy, while 18% of patients with proliferative retinopathy had normal to low levels of vitamin D levels. It was statistically significant with p-values (0.001). This study pointed no effect of age, gender and duration of diabetes on retinopathy. Another study by Patricia, *et al.* [5], demonstrated close association between prevalence of vitamin D deficiency and severity of diabetic retinopathy.

On summary, in order to determine an association between vitamin D deficiency and severity of diabetic retinopathy, we can plan preventive measures to improve prognosis and quality of life in diabetic patients. In future, more extensive work is needed regarding supplementation of vitamin D and other anti-angiogenic vitamins in medical management of diabetic retinopathy.

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