

Evaluation of the Relationship between diabetic retinopathy and serum vitamin D level in diabetic patients referred to the ophthalmology clinic of Ardabil Imam Reza Hospital in 2020.

Abstract

Background: Due to the high prevalence of diabetes in communities and its increasing course in all industrial societies because of unhealthy lifestyle and reduced physical activity and increased obesity, diabetes is an increasing disease worldwide and also in our country. And due to the fact that in most patients, proper control of diabetes is not done, it seems that the systemic complications of diabetes have also increased. On the other hand, according to new studies and emphasizing the important role of vitamin D3 in regulating vascular structure and anti-inflammatory activity, vitamin D deficiency can play a significant role in the development and acceleration of diabetic vascular complications, especially ocular complications of diabetes; The present study was designed and implemented.

Aim: To determine the Relationship between diabetic retinopathy and serum vitamin D level in diabetic patients referred to the ophthalmology clinic of Ardabil Imam Reza Hospital in 2020.

Materials and Methods: The study was a case-control study. A checklist was used to collect data. Participants in the study underwent complete ophthalmologic examinations including visual acuity measurement, complete ocular examinations with slit lamp device and retinal examination. The presence or absence of diabetic retinopathy and its staging was determined and recorded in a special form. In addition, the patients' own information, including age, sex, duration of illness and type of treatment, is recorded in the relevant checklist. Blood tests are then performed on patients, which include measurements of vitamin D levels. Based on fundus examination of the eye, patients were divided into three groups without diabetic retinopathy (n = 90), non-proliferative diabetic retinopathy (n = 109) and proliferative diabetic retinopathy (n = 30).

Results: Vitamin D3 levels in our study were significantly lower in the group with diabetic retinopathy than in patients without diabetic retinopathy. Further investigation showed that the more severe the complication, the significantly lower the level of vitamin D3. As mentioned, in patients with diabetic retinopathy who were positive for DME (diabetic macular edema); Vitamin D3 was significantly lower than in patients with retinopathy without macular edema. Only 1.6% of DME Positive patients had normal vitamin D3 levels, while this rate was 11.5% in patients with retinopathy and DME negative. Also in terms of PDR and NPDR of patients with diabetic retinopathy; Those patients with diabetic

retinopathy who had proliferative diabetic retinopathy (PDR) had lower levels of vitamin D3 than in NPDR patients. In PDR patients, the level of vitamin D3 was significantly higher in patients with milder grade (EARLY & MILD PDR).

Conclusion: Finally, it can be concluded that low vitamin D3 level is a risk sign in diabetic patients and its timely diagnosis and treatment have a significant impact on the prevention of diabetic retinopathy or its severity. Paying attention to correct and timely screenings and also checking the level of vitamin D3, especially in diabetic patients, by the treating physician and the patient, can play a useful role in early diagnosis or preventing its progression.

Keywords: Diabetes mellitus, Vitamin D deficiency, Retinopathy.