Acta Biomedica Scientia
e - ISSN - 2348 - 2168
Print ISSN - 2348 - 215X
www.mcmed.us/journal/abs
Research Article

# EVALUATE THE EFFICACY OF INTRAVITREAL CONBERCEPT INJECTIONS IN NON-PROLIFERATIVE DIABETIC RETINOPATHY IN A TERTIARY CARE

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**ABSTRACT**

To date, few effective treatments have been offered. Pan retinal photocoagulation is the preferred treatment option for the treatment of critical NPDR. This approach, however, will maintain visual acuity only and could be interfering with other sight skills; also, the assessment of recurrence after therapy maintains huge. As a result, the development of local NPDR therapy is important to prevent the disease from progressing to a point where it may have a significant impact on visual acuity. The purpose of this study was to determine how intravitreal conbercept injections work in non-proliferative diabetic retinopathy. The study included patients with type 2 diabetes, medication-controlled blood sugar levels, glycosylated hemoglobin levels below 10 percent, then BP below 160/90 mmHg, respectively. The research comprised a total of 54 individuals with NPDR. A total of 54 eyes were chosen from the 54 patients, including 30 right eyes and 24 left eyes. For diabetic retinopathy, anti-VEGF medication has lately become a prominent therapeutic choice. Anti-VEGF injections into the eyes have been used to treat vision-threatening diseases. This vision-saving procedure is especially beneficial to patients with diabetic retinopathy. In afflicted individuals, intravitreal conbercept injection exhibited a clear and persistent therapeutic effect on NPDR, according to our data. However, a more thorough investigation of the therapeutic mechanism is needed.

**Keywords: -** Conbercept, Patient characteristics, Diabetic retinopathy

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| Received**:** 05.01.2021 | **Revised**: 18.01.2021 | **Accepted**: 29.01.2021 |
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## INTRODUCTION

Diabetes mellitus has a high global prevalence, then its problems are many and varied, which includes diabetic retinopathy, diabetes-related cardiovascular disease [3], diabetic nephropathy [4], and diabetic nephropathy. [1,2] Those issues are the leading cause of disorder and death in patients with diabetes, and they may be avoided. [5] Diabetic retinopathy is a frequent microvascular complication of diabetes [6], and it is caused by a high glucose metabolic stress condition. [6,7] Diabetic retinopathy is considered as a severe concern to mankind health since it has the potential to cause some degree of blindness. [8] The two clinical phases of diabetic retinopathy are NPDR (non-proliferative diabetic retinopathy) and PDR (proliferative diabetic retinopathy).[9] Non-proliferative diabetic retinopathy (NPDR) is the first part of diabetes retinopathy and frequency of NPDR progresses to proliferative diabetic retinopathy by about 14 percent, and increases every

year. [11] To date, few effective treatments have been offered. When it comes to treating sensitive NPDR, pan retinal photocoagulation is the treatment of choice. This approach, however, will limit the ability to see only and may interfere with other visual skills (such as driving ability); also, the rate of recurrence after treatment remains high. [12,13] Consequently, the development of NPDR local therapeutic drugs is important to prevent it from progressing to the point where it may have a significant impact on the intelligence of the vision.

The growth factor vascular endothelial growth factor (VEGF), according to some study, is involved in the process of retinal neovascularization. Intravitreal injections of anti-VEGF medications have grown into a pre-vitrectomy adjuvant treatment. A new VEGF antibody device, Conbercept, has been created and is currently being tested in clinical studies in the United States and China. 17 Conbercept has been shown to improve a wide range of clinical symptoms, including improved visual acuity (BCVA), central foveal intensity (CFT), and the level of choroidal neovascularization, in previous studies. 18 Diabetes macular edoema, age-related macular degeneration, serous chorioretinopathy (20), and proliferative diabetesic retinopathy were all treated with Conbercept. [14] Conbercept, on the other hand, hasn't been identified as a widely utilised NPDR medication. Patients with severe NPDR were included in this retrospective clinical investigation, which looked at the effectiveness of intravitreal conbercept injections in the goal of expanding their clinical treatment options.

**AIMS AND OBJECTIVES**

To evaluate the efficacy of intravitreal conbercept injections in non-proliferative diabetic retinopathy.

Patients and treatment approaches:

**Patients :**

The study included NPDR patients who were hospitalized in the Department of General medicine. The protocol for this previous study was approved by Hospital Ethics Review Committee. Because this was a retrospective study approved by the Ethics Review Committee, it was decided that informed consent was not required.

This study was performed on patients with type 2 diabetes, medication-controlled glucose levels, glycosylated hemoglobin levels were less than 10%, and blood pressure was below 160/90 mmHg, respectively. To validate solid NPDR, ocular fundoscopy, fundus fluorescein angiography, and optical coherence tomography (OCT) were used. Finally, prior to participating in this study, none of the patients had ever received fundus treatment (e.g., retinal photocoagulation or intravitreal injections of anti-VEGF drugs or hormones). Release conditions include media incompatibility and / or effects of malignant retinal vascular disease, as well as poor image quality due to media uncontrollability.

Patients were given a three-pronged approach to treating conbercept under aseptic conditions: received one intravitreal injection per month for three months, after which they continued or stopped treatment based on their clinical progress. [20] The reversal was performed when one or more of the following conditions were met: On the other hand, OCT showed that the CFT value exceeded 280 lm and that the loss of BCVA was 0.2 logarithm of low resolution angle (logMAR). Therapeutic efficacy was measured using three different markers: BCVA, CFT, hard exudate (HE), and microaneurysm (MA) size.

BCVA was calculated using a standard logarithmic visual acuity chart, and then converted to logMAR units for statistical analysis. A spectral-domain optical coherence tomography (OCT) device was used to diagnose CFT. At the same time, patients with severe NPDR had OCT B-scans, which were used to measure HE position in patients' eyes. Using RetmarkerDR, downloaded, the MA number was automatically screened for OCT images.

**Statistical Analysis:**

IBM SPSS statistics for Windows, version 22.0, were used for data analysis. Values that mean standard deviations are generated and displayed to represent the distribution of measurement data. The v2 test was hired to test the quality variables, while the paired t-test was used to measure changes in BCVA, CFT, HE, and MAs over time. The findings of this study were reported in the journal Neurology. The difference is considered statistically significant when the p value $< 0.05$.

**RESULTS:**

**Table 1: Different Parameters and No. of Injections**

| Parameters | |
|---|---|
| Patients/Eyes (n) | 54/54 |
| Sex : M/F | 26/28 |
| Eyes (n, left /right) | 24/30 |
| Mean Age | 60.1 |
| Baseline BCVA | 0.71 |
| Baseline CFT | 424.6 |
| No. of Injections | 6.12 |

**Table 2: Follow up for 9 Months**

| | Before Treatment | 1 Month | 3 Months | 6 Months | 9 Months |
|---|---|---|---|---|---|
| N=35 | 0.71 | 0.52 | 0.43 | 0.41 | 0.42 |
| T | - | 5.06 | 7.65 | 8.61 | 8.12 |
| P | - | <0.001 | <0.001 | <0.001 | <0.001 |

**Clinical features of patients and baseline data:**

The study included a total of 54 people with NPDR (26 males and 28 females; mean age, 60.1 8.3). 54 eyes were selected from 54 patients, including 30 on the right and 24 on the left. The baseline patient characteristics are shown in Table 1. Initially, the median BCVA was 0.71 0.20 logMAR and the median CFT was 424.26 64.89 lm. During the follow-up period, treatment included three re nata drugs, with an average dose of 6.12 1.89 injections. [Table 1]

**BCVA Modification**:

The BCVA rate at each follow-up period was significantly different from the baseline value, as shown in Figure 1 and Table 2. (P 0.001). According to these findings, BCVA significantly improved at 1-, 3-, and 6 months follow-up points compared to baseline value, and remained stable over a 12-month follow-up period.

**CFT Modification:**

When compared to the baseline value, the mean (CFT) fell significantly at every follow-up time point (, P 0.001).[Table 2]These findings showed that intravitreal conbercept injection reduced CFT significantly and that the effect was sustained.

**DISCUSSION:**

NPDR is more common than proliferative diabetic retinopathy in people with type 2 diabetes; 2 as a result, it is important to detect and treat NPDR as soon as possible to prevent the development of retinopathy-induced diabetic retinopathy. Patients with NPDR were given intravitreal conbercept injections using a three-pro re nata procedure in this study. VEGF has been found to accelerate retinal neovascularization and is considered a contributing factor in diabetic retinopathy pathogenesis. With diabetic retinopathy, anti-VEGF medications have recently become a popular treatment. Anti-VEGF eye injections have been used to treat visually impaired diseases. Diabetes patients with retinopathy, in particular, benefit greatly from this life-saving procedure. Effective drugs have been shown in several trials to effectively bind retinopathy and improve BCVA in people with this condition.

The intravitreal injection of methotrexate reduced chronic diabetic edema, and 16.6% of patients saw significant improvement in BCVA. 25 Because it improves BCVA in patients with diabetes retinopathy, the ranibizumab intravitreal injection is also considered an effective treatment. In addition, Gross et al. showed that anti-VEGF treatment may reduce the severity of diabetic retinopathy and that the effect of treatment was higher than pan retinal photocoagulation for at least two years [14].

**CONCLUSION**

In afflicted individuals, intravitreal conbercept injection exhibited a clear and persistent therapeutic effect on NPDR, according to our data. However, a more thorough investigation of the therapeutic mechanism is needed.

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**Cite this article:**
P.Krishna murthy Choudary & Hari Priya. Evaluate The Efficacy Of Intravitreal Conbercept Injections In Non-Proliferative Diabetic Retinopathy In A Tertiary Care. **Acta Biomedica Scientia**, 2021;8(2):20-23.