



Prevalence of Retinal Vascular Diseases in a Tertiary Care Hospital in Türkiye: A Hospital-Based Epidemiologic Study

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Abstract

Objectives: To determine the prevalence of diabetic retinopathy (DR), retinal vein occlusion (RVO), and retinal artery occlusion (RAO) in a tertiary care hospital in Türkiye.

Materials and Methods: The electronic records of all patients over the age of 18 years admitted to a tertiary care general hospital between January 2022 and January 2024 were retrospectively analyzed. For each of the three diseases, demographic data such as age, sex, and common complications were evaluated.

Results: A total of 140,344 patients were retrospectively analyzed. Of these patients, 44.6% (n=62,575) were male and 55.4% (n=77,769) were female. The number of patients diagnosed with retinal vascular disease was 1,963 and 52.3% (n=1,028) of these patients were female. The prevalence of retinal vascular diseases in the general population was 1.4% (95% confidence interval [CI]: 1.34% to 1.46%). The prevalence of DR, RVO, and RAO was 1.12% (95% CI: 1.07% to 1.18%), 0.27% (95% CI: 0.24% to 0.3%), and 0.01% (95% CI: 0% to 0.01%), respectively. Among these three diseases, DR was statistically more common in women (p=0.048) and RAO in men (p=0.015), while RVO (p=0.079) was not associated with sex. In patients with DR, macular edema was more common in patients older than 50 years, while neovascularization was more common in patients younger than 50 years. The development of macular edema and neovascularization was not associated with sex in patients with these three diseases.

Conclusion: This is the first study to report the demographic data of patients diagnosed with retinal vascular diseases in Türkiye. However, there is a need for nationwide, multicenter, hospital and community-based studies including different geographical regions of Türkiye that examine the data of patients in detail.

Keywords: Diabetic retinopathy, retinal vein occlusion, retinal artery occlusion, prevalence, macular edema, neovascularization

Introduction

Retinal vascular diseases are characterized by decreased retinal blood flow, leakage, exudation, ischemia, or neovascularization and induce changes such as retinal cell edema and atrophy.^{1,2,3,4} Effective treatment is imperative to prevent transient or permanent vision loss. The retinal vascular diseases most commonly diagnosed in ophthalmology outpatient clinics are diabetic retinopathy, retinal vein occlusions, retinal artery occlusions, and hypertensive retinopathy. With early diagnosis and appropriate treatment of these diseases, vision loss can be minimized and organ damage avoided.^{4,5,6}

Prevalence is the number of cases of a disease or condition present in a given population at a given time. Studies revealing the epidemiological characteristics of a population allow the prevalence of common diseases to be determined. By obtaining accurate information about the prevalence of diseases, health authorities can more clearly assess the health needs of a population, develop programs to prevent diseases, and ensure that resources are prioritized for the purpose of improving public health.

The aim of our study was to determine, for the first time in our country, the prevalence of diabetic retinopathy, retinal vein occlusion, and retinal artery occlusion (the most frequently diagnosed retinal vascular diseases in ophthalmology clinics) among patients presenting to a tertiary hospital, thus contributing to the protection of public health and the correct planning of health services and resources.

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Materials and Methods

This study was approved by the University of Health Sciences Türkiye, Ankara Training and Research Hospital Ethics Committee (ethics number: E-24-151, date: 06.06.2024) and conducted in accordance with the principles of the Declaration of Helsinki. Being a retrospective study, informed consent was not obtained.

We retrospectively reviewed the electronic records of all patients over the age of 18 years who presented to the Ophthalmology Outpatient Clinic of the University of Health Sciences Türkiye, Ankara Training and Research Hospital, a tertiary general hospital, between January 2022 and January 2024. Among these patients, the demographic data (e.g., age, sex, diagnosis) of patients diagnosed with diabetic retinopathy, retinal vein occlusion, or retinal artery occlusion and followed up in the retina outpatient clinic of our department were examined. The diagnostic criteria for the retinal vascular diseases are given below.

Patients who were diagnosed with diabetes mellitus and had retinopathy findings such as microaneurysm, dot hemorrhages, and soft or hard exudate on dilated fundus examination were designated as having diabetic retinopathy. The records of patients with diabetic retinopathy were retrospectively examined to determine whether they had macular edema, received intravitreal injection, developed proliferative diabetic retinopathy (PDR), and underwent panretinal photocoagulation.

Patients with dilated fundus examination findings such as intraretinal hemorrhages, occlusion and dilation of an affected vein, and presence of soft exudate were classified as retinal vein occlusion and further grouped as branch retinal vein occlusion or central retinal vein occlusion according to the occluded segment. For these patients, we retrospectively examined whether macular edema developed and whether intravitreal injection and panretinal photocoagulation were performed.

Patients whose dilated fundus examination showed occlusion of a retinal artery with ischemic whitening of the retina only along the course of the occluded branch were diagnosed as having branch retinal artery occlusion. If the ischemic whitening involved all four quadrants and was accompanied by a cherry-red spot, the patient was diagnosed as central retinal artery occlusion. We retrospectively examined demographic characteristics such as age and sex for patients who received these diagnoses and were followed in the retina outpatient clinic.

Of the patients with diabetic retinopathy and retinal vein occlusion who developed macula edema, those who had a decline in visual acuity and evidence of macular edema on optical coherence tomography (Heidelberg Engineering, Franklin, MA, USA) were treated with intravitreal injections of ranibizumab (Lucentis®; Genentech/Roche, USA), aflibercept (Eylea®, Bayer, Berlin, Germany), bevacizumab (Altuzan®, Roche), or dexamethasone intravitreal implant (Ozurdex®; Allergan, Inc., CA, USA). Laser photocoagulation (Topcon Pascal Pattern Scanning Laser, Medical Laser Systems, Tokyo, Japan) was performed in patients who were diagnosed with these three

retinal diseases and had signs of neovascularization in the retina, iris, or angle.

Statistical Analysis

Statistical analysis was performed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Continuous data were expressed as mean \pm standard deviation. Categorical data were expressed as number and percentage. Chi-square test and Fisher's exact test were used for univariate analysis. A p value <0.05 was considered statistically significant.

Results

The records of 140,344 patients who presented to the ophthalmology outpatient clinic of our hospital between January 2022 and January 2024 were retrospectively reviewed. Of these patients, 44.6% ($n=62,575$) were male and 55.4% ($n=77,769$) were female and the majority were between the ages of 18-29 and 40-69 years ($n=108,080$). The demographic data of these patients by age group and sex are shown in [Figure 1](#).

A total of 1,963 patients were diagnosed with retinal vascular disease, and 52.3% ($n=1,028$) of these patients were female. The prevalence of retinal vascular diseases in the entire population was 1.4% (95% confidence interval [CI]: 1.34% to 1.46%). Of these 1,963 patients, 1,575 (80.2%) were diagnosed with diabetic retinopathy, 377 (19.2%) with retinal vein occlusion, and 11 (0.6%) with retinal artery occlusion. The prevalences of diabetic retinopathy, retinal vein occlusion, and retinal artery occlusion were 1.12% (95% CI: 1.07% to 1.18%), 0.27% (95% CI: 0.24% to 0.3%), and 0.01% (95% CI: 0% to 0.01%), respectively. Prevalence and demographic data of patients diagnosed with these retinal vascular diseases are given in [Tables 1, 2](#) and [Figures 2, 3](#).

Diabetic retinopathy was most common between the ages of 60-69 years (37%, $n=579$) and 50-59 years (26.4%, $n=416$) and was statistically more common in women (53%, $n=834$) ($p=0.048$). There was no difference between male and female patients in terms of age at diagnosis. Of the 1,575 patients diagnosed with diabetic retinopathy, 513 received intravitreal

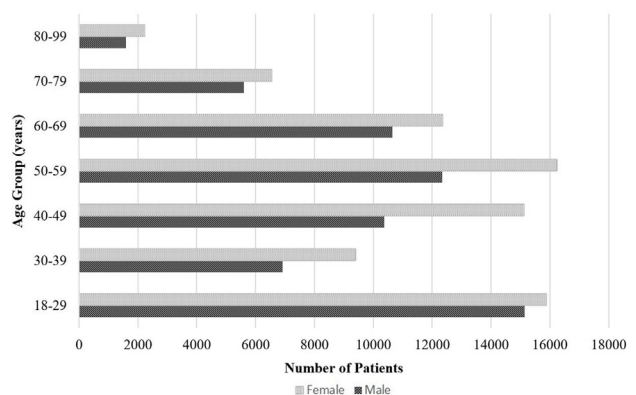


Figure 1. Distribution of all patients examined in the ophthalmology clinic, by age and sex

injection due to macular edema. The prevalence of macular edema in patients with diabetic retinopathy was 32.7% (95% CI: 30.26% to 34.89%). Patients who received intravitreal injections due to macular edema were most frequently between the ages of 60-69 years (36.2%, n=186), with no significant difference between females and males (p=0.173). There were 241 patients with diabetic retinopathy who underwent panretinal photocoagulation due to the development of PDR. Laser photocoagulation was most commonly required in patients aged 50-69 years, of which 129 were female and 112 were male. The prevalence of PDR among patients with diabetic retinopathy was 15.3% (95% CI: 13.52% to 17.08%). The rate of PDR did not differ between male and female patients (p=0.846) but was higher in patients under 50 years of age (p=0.002).

Of the 377 patients diagnosed with retinal vein occlusion, 192 (51%) were female and 185 (49%) were male. Vein occlusions were most common in the age ranges of 60-69 years (33%, n=123) and 70-79 years (26.5%, n=100). There was no difference between male and female patients in terms of age at diagnosis. Of these patients, 124 (32.9%) were diagnosed with central retinal vein occlusion and 253 (67.1%) with branch vein occlusion. Intravitreal injections for macular edema were administered to 198 of 377 patients diagnosed with vein occlusion. The prevalence of macular edema in patients with retinal vein occlusion was 52.52% (95% CI: 47.48% to 57.56%). Patients treated for macular edema were most frequently aged 60-69 years (34.3%, n=68), with no significant

difference in injection according to sex (p=0.811). There were 25 patients who underwent panretinal photocoagulation due to the development of neovascularization. Laser photocoagulation was most often required in patients aged 60-79 years, and 10 of the patients who underwent laser treatment were female and 15 were male. The prevalence of neovascularization in patients with vein occlusion was 6.63% (95% CI: 4.12% to 9.14%). There was no significant sex difference in the development of neovascularization (p=0.348). Of the patients who developed neovascularization, 75% had central retinal vein occlusion.

There were 11 patients diagnosed with retinal artery occlusion, of whom 9 were male and 2 were female, and all were diagnosed with central retinal artery occlusion. None of the patients had branch retinal artery occlusion. Arterial occlusions were most common in the age range of 50-79 years (73%, n=8). However, the mean age was 75 years among female patients and 58.11 years among male patients. Panretinal photocoagulation was performed due to neovascularization in 2 (18%) of the 11 patients. The prevalence of neovascularization in patients with arterial occlusion was 18.18% (95% CI: -4.61% to 40.97%). There was no significant relationship between sex and the development of neovascularization (p=0.655). Comparisons of clinically significant macular edema (CSDME) and neovascularization development according to sex and age are shown in Table 3.

Disease	Prevalence n (%), 95% CI
All retinal vascular diseases	1963 (1.4, 1.34-1.46)
Diabetic retinopathy	1575 (1.12, 1.07-1.18)
Retinal vein occlusion	377 (0.27, 0.24-0.3)
Branch retinal vein occlusion	253 (0.18, 0.16-0.2)
Central retinal vein occlusion	124 (0.09, 0.07-0.1)
Retinal artery occlusion	11 (0.01, 0-0.01)

n: Number of patients, CI: Confidence interval

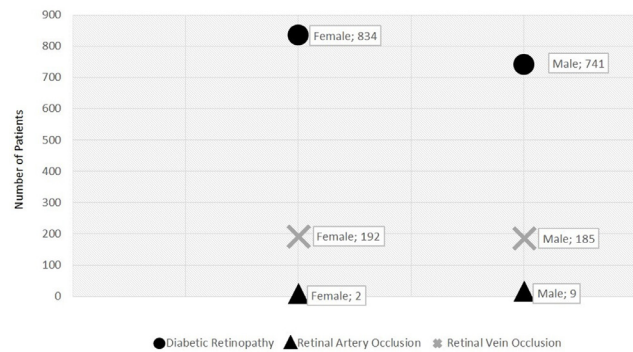


Figure 2. Distribution of retinal vascular diseases by sex

Parametre	Diabetic retinopathy (n=1575)		Retinal vein occlusion (n=377)				Retinal artery occlusion (n=11)	
	Female	Male	Female	Male	Female	Male	Female	Male
n	834	741	192	185	2	9		
Age, years (mean ± SD)	63.29±10.33	62.31±10.75	65.32±11.56	64.41±12	75±7.07	58.11±13.22		
n			VDT (n=253)		SRVT (n=124)			
			Female	Male	Female	Male		
			132	121	60	64		
Age, years (mean ± SD)			60.6±9.58	63.9±8.6	62.52±5.06	64.52±9.46		
p*	0.048		0.079				0.015	

*Chi-square test, n: Number of patients, BRVO: Branch retinal vein occlusion, CRVO: Central retinal vein occlusion, SD: Standard deviation

Discussion

Retinal vascular diseases are common conditions that pose a threat to vision. Of these, diabetic retinopathy causes acute or chronic vision loss, while retinal vein and artery occlusions cause vision loss that can be acute and irreversible.^{1,2,3,4} Therefore, calculating the prevalence of these diseases and their complications in the population is important to prevent both

the individual (unemployment, permanent organ damage) and social losses (loss of labor, insurance costs) resulting from these diseases and the complications they cause. This large-scale, hospital-based study is the first to show the prevalence of diabetic retinopathy, retinal artery and vein occlusions, and the common complications of these diseases in Türkiye. In our study, the combined prevalence of these three retinal vascular diseases was 1.4%, with individual prevalence rates of 1.12% for diabetic

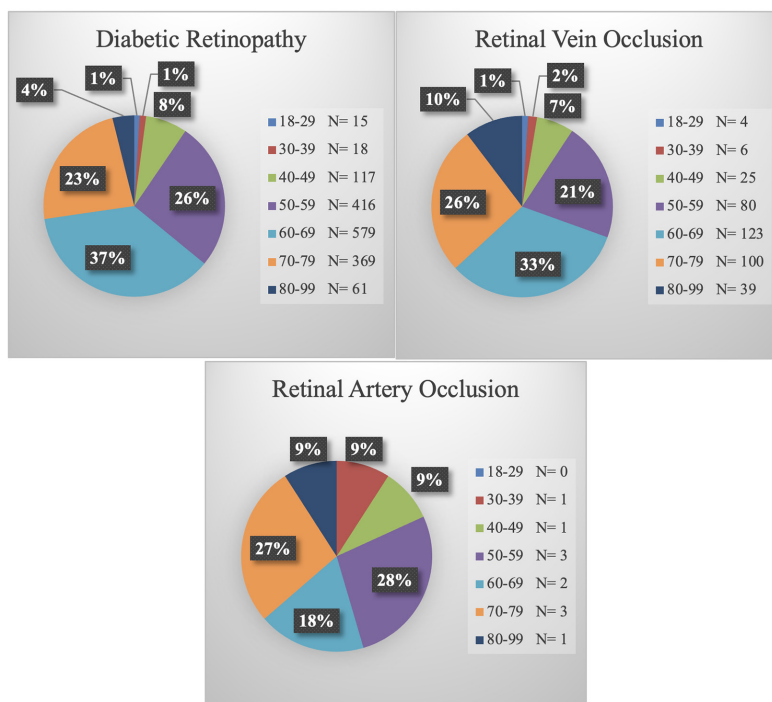


Figure 3. Distribution of retinal vascular diseases by age group

	Diabetic retinopathy (n=1575)		Retinal vein occlusion (n=377)		Retinal artery occlusion (n=11)	
	Female	Male	Female	Male	Female	Male
Clinically significant macular edema						
n	259	254	102	96		
Age, years (mean ± SD)	63.02±9.55	62.88±11.07	66.3±10.64	65.71±10.48		
<50 years**	23	28	6	6		
≥50 years**	236	226	96	90		
p*	0.173		0.811			
Neovascularization						
n	129	112	15	10		2
Age, years (mean ± SD)	59.38±10.2	60.03±10.35	67.13±11.54	62.8±10.8		55.5±0.71
<50 years	20***	17***	1	2		0
≥50 years	109	95	14	8		2
p*	0.846		0.348			

*Chi-square test (by sex), **Chi-square test (p>0.05 by age group), ***Chi-square test (p=0.002 in the diabetic retinopathy group by age subgroup), n: Number of patients, SD: Standard deviation

retinopathy, 0.27% for retinal vein occlusions, and 0.01% for retinal artery occlusions.

Looking at published studies on the prevalence of diabetes mellitus, a 2023 Turkish study examining the electronic records of 55,421,914 patients over the age of 14 years showed that 7,178,674 of these patients were diagnosed with diabetes mellitus and the prevalence of diabetes mellitus was 11.12%.⁷ In terms of the global prevalence of diabetes mellitus, a study published in 2022 indicated that the global prevalence of diabetes in the 20-79 age group was 10.5% (536.6 million people) in 2021 and is predicted to increase to 12.2% (783.2 million people) by 2045.⁸ The prevalence of diabetes mellitus in our country is similar to and even slightly lower than in other countries. When we examine studies on the prevalence of diabetic retinopathy, a study conducted in 2021 reported the prevalence of diabetic retinopathy as 3.95% in Taiwan and 15.9% in Korea.⁹ In a large-scale study including 1,904,927 people in China, the prevalence of retinopathy among all patients admitted to hospitals between 2019 and 2021 was found to be 9.6% in 2019 and 10.3% in 2021.¹⁰ Another Chinese study published in 2023 showed the prevalence of retinopathy among people with diabetes was 16.3%, with vision-threatening diabetic retinopathy having a prevalence of 3.2%.¹¹ A 2022 study from England showed that the prevalence of diabetic retinopathy in people over 18 years of age with diabetes decreased from 38.9% in 2012 to 36.6% in 2016.¹² In a 2024 study including people over 60 years of age in Iran, the prevalence of non-PDR was found to be 4.05%, while the prevalence of PDR was found to be 0.54%.¹³ A 2021 meta-analysis examining the global prevalence of diabetic retinopathy indicated that the prevalence of diabetic retinopathy in people with diabetes was 22.27% overall and varied by region. The highest prevalence was in Africa (35.9%), the Middle East/North Africa (32.9%), and North America/Caribbean (33.3%), while the lowest prevalence was noted in South and Central America (13.37%).¹⁴ In our study, the prevalence of diabetic retinopathy was calculated as 1.12% among all patients presenting to an ophthalmology outpatient clinic. This is lower than the prevalence reported in other countries. One reason for this may be that our study was hospital-based, and the diagnosed patients already had symptoms that affected their vision. As a result, our study may not have included patients with asymptomatic diabetic retinopathy. Another reason was that this study examined the prevalence of diabetic retinopathy among patients presenting to an ophthalmology outpatient clinic; if we had investigated the prevalence of diabetic retinopathy among people diagnosed with diabetes, we may have detected a higher rate.

If we examine the literature data regarding the relationship between diabetic retinopathy and age, a study conducted in China showed that diabetic retinopathy was most common in patients aged 45-60 years and second most common in those over 60 years of age.¹¹ In a study conducted in England, the mean age of patients with diabetic retinopathy was 65 years (54-75 years).¹² According to the aforementioned study on the global prevalence of diabetic retinopathy, the risk of developing diabetic retinopathy increased 2.41 times with each decade increase in

age.¹⁴ Similar to research conducted in other countries, diabetic retinopathy was most common in the 60-69 age group (37%) and second most common in the 50-59 age group (26.4%) in our study.

Regarding the relationship between diabetic retinopathy and sex, it was reported that female sex was associated with a high incidence of diabetic retinopathy in the study conducted in England, while the 2023 study conducted in China showed that women were less likely than men to have any diabetic retinopathy, vision threatening or not.^{11,12} In another study examining the global prevalence of diabetic retinopathy, there was no relationship between sex and the development of diabetic retinopathy or diabetic macular edema, whereas sight-threatening diabetic retinopathy was seen more frequently among female than male patients.¹⁴ In our study, females predominated among patients with diabetic retinopathy (53%) and the prevalence of diabetic retinopathy was statistically higher in female patients.

Diabetic macular edema is an important complication of diabetes that threatens vision, but the risk of vision loss can be reduced with early diagnosis and treatment. Looking at the literature data on the prevalence of diabetic macular edema, a study conducted in China showed that the prevalence of diabetic macular edema was 0.75%, while the prevalence of vision-affecting CSDME was 0.54%, and another study examining research from the USA and China indicated that the prevalence of CSDME was between 0.7% and 5.6%.^{11,15} In the global prevalence study, regional differences in the prevalence of CSDME were observed (range, 2.30-6.06%), with an average of 4.07%.¹⁴ In our study, the prevalence of CSDME requiring intravitreal injection therapy was 0.32%, slightly lower than reported in the literature, and there was no statistical difference between male and female patients in terms of the development of macular edema. Regardless of sex, the rates of intravitreal injection therapy were similar among patients under and over 50 years of age (34% vs. 32.5%). There was no sex-based difference in the need for intravitreal injection in patients in either age group.

In the literature, the prevalence of vision-threatening PDR was reported as 3.5% in the study conducted in England and 1.5-3.4% in the study examining data from the USA and China.^{12,15} In a 2023 Chinese study, the prevalence of PDR was found to be 0.64%, whereas in the global prevalence study, prevalence was not evaluated separately for PDR but was calculated together with severe non-PDR and CSDME as sight-threatening diabetic retinopathy.^{11,14} In our study, the prevalence of PDR was found to be 0.15% and was lower than in other studies in the literature, similar to the prevalences of diabetic retinopathy and CSDME.

When we examine the relationship between sex and the prevalence of CSDME and PDR, one of the studies conducted in China showed that women were less likely than men to have CSDME and vision-threatening diabetic retinopathy.¹¹ The study conducted in England also indicated that male sex was associated with higher risk of developing severe diabetic retinopathy and diabetes-related complications inversely to

age.¹² In the global prevalence study, sex had no effect on the development of CSDME and diabetic retinopathy, but the risk of developing vision-threatening diabetic retinopathy was slightly higher in women.¹⁴ In our study, no sex-based differences were observed in the development of CSDME or PDR among all patients diagnosed with diabetic retinopathy, but laser therapy was required more frequently by patients under 50 years of age (25%) than those over 50 years of age (14.3%). When we examined patients under the age of 50 in terms of PDR development, a higher percentage of female patients required laser photocoagulation (29% vs. 21%) but there was no statistically significant difference between females and males. Laser photocoagulation rates among female and male patients over 50 years of age were similar (14.25% vs. 14.29%) but lower than in patients under 50 years of age.

Another common retinal vascular disease is retinal vein occlusions. When we look at the epidemiological data in the literature, a Chinese study determined the prevalence of retinal vein occlusions in people over the age of 18 in the years 2019-2021 was 0.73%, 1.13%, and 1.57%, respectively.¹⁰ According to another study determining the global prevalence of retinal vein occlusions in the 30-89 year age group in 2019, the prevalences of retinal vein occlusion, branch retinal vein occlusion, and central retinal vein occlusion were found to be 0.77%, 0.64%, and 0.13%, respectively.⁶ In a 2023 study conducted in Africa in patients over 30 years of age, the prevalence of retinal vein occlusion was found to be 0.8%, while another study reported the prevalences of branch and central retinal vein occlusions respectively to be 0.49% and 0.19% in patients over 60 years of age in Iran.^{13,16} In our study, the prevalence of retinal vein occlusion, branch vein occlusion, and central retinal vein occlusion were 0.27%, 0.18%, and 0.09%, respectively. The prevalence of retinal vein occlusions in our study was relatively low compared to both global and national prevalences. Many authors have emphasized that high-sodium diets and hypertension are important etiological factors in the development of vein occlusion.¹⁰ Therefore, the high salt consumption in China may explain the relatively higher prevalence of vein occlusion compared to other countries. In our study, systemic hypertension was present in 44% of patients diagnosed with retinal vein occlusion.

Regarding the impact of sex and age on retinal vein occlusion, a study conducted in China reported that the prevalence of vein occlusion was higher in patients over 50 years of age, but there was no relationship between sex and vein occlusion.¹⁰ Similarly, in a study examining the global prevalence of vein occlusion, it was shown that the prevalence of vein occlusion increased with age (1.60 times higher risk of vein occlusion for every decade), but no relationship was found with sex.⁶ In the African study as well, the rate of retinal vein occlusion was higher in people aged 50-69 years, but there was no relationship with sex.¹⁶ Similar to other studies, the prevalence of vein occlusion increased with age but was not associated with sex among people over 60 in Iran.¹³

In our study as well, there was no relationship between sex and the development of retinal vein occlusion, whereas the prevalence of vein occlusion increased with age. In our study, 60% of the patients diagnosed with vein occlusion were between 60 and 79 years of age.

When we look at studies examining the prevalence of macular edema or neovascularization, which are among the important complications of retinal vein occlusion, the prevalence of macular edema has been reported to be between 5-20%.^{17,18} In our study, the prevalence of macular edema secondary to retinal vein occlusion and requiring treatment was 52%. We think that the high prevalence of macular edema in our study is due to the fact that our study was hospital-based and included patients presenting to the hospital due to symptoms such as decreased vision. When we look at the relationship between sex and age and the development of macular edema, no difference was found between the female and male sexes in terms of the need for intravitreal injection. In our study, the mean age of patients who received intravitreal injections was 66.02 ± 10.54 years, and 94% of our patients were over 50 years of age. If we evaluate the development of neovascularization, 6.7% of our patients required photocoagulation and 75% of these patients had a diagnosis of central retinal vein occlusion. Other studies have also reported the rate of retinal neovascularization in central retinal vein occlusion as 5%.¹⁹ In our study, no relationship was observed between sex and the need for laser therapy.

Another important retinal vascular disease is retinal artery occlusion. This acute pathology results in retinal ischemia and infarction, and requires urgent diagnosis and treatment.⁴ Retinal artery occlusion has been reported in previous studies to have an incidence of 0.001-0.02% and be more common in men.²⁰ In a study examining the incidence of retinal artery occlusion before and after the coronavirus disease-2019 (COVID-19) pandemic, the rates were 0.6% and 0.7% for central retinal artery occlusion and 1.1% and 1.2% for branch retinal artery occlusion, respectively, with no difference before and after COVID.²¹ In a study conducted in Korea, patients diagnosed with retinal artery occlusion in 2002-2018 were examined and the prevalence of retinal artery occlusion was found to be 0.007%.²² In our study, the prevalence of retinal artery occlusion was found to be 0.01%. When we examined the relationship between sex and retinal artery occlusion, it was observed that 9 of the 11 patients diagnosed with arterial occlusion were male and 2 were female, consistent with other published studies in which arterial occlusion was seen more frequently in men. Of these 11 patients, 2 (18%) underwent laser photocoagulation due to the development of neovascularization. The rate of neovascularization after central retinal artery occlusion was similar to that reported in the literature (18.2%).²³

Study Limitations

Firstly, as this study was hospital-based, it evaluated the prevalence of retinal vascular diseases among patients presenting

to the hospital as a result of symptoms. However, it will be useful as a pioneering work for future community-based studies that represent the entire population. Secondly, we analyzed the demographic data of the patients such as age, sex, and frequent complications, but not all systemic diseases, visual acuity, or detailed imaging findings. A more comprehensive analysis including these data would undoubtedly be useful.

Conclusion

In conclusion, our study is the first to report the prevalence of the most common retinal vascular diseases and their most common complications in Türkiye. The prevalence rates of diabetic retinopathy, retinal vein occlusions, and retinal artery occlusions respectively in our study were 1.12%, 0.27%, and 0.01%. We observed that the development of diabetic retinopathy was more common in women. In terms of the development of complications (macular edema and PDR), there was no difference between male and female patients, whereas patients under the age of 50 showed greater risk for PDR and those over the age of 50 were at higher risk for macular edema.

Although a higher percentage of male patients were diagnosed with retinal vein occlusion, there was no statistical difference according to sex. There was also no difference between the male and female sexes in terms of macular edema or neovascularization development. Laser photocoagulation was performed due to the development of neovascularization in 6.7% of our patients, 75% of whom were diagnosed with central retinal vein occlusion. Finally, the prevalence of retinal artery occlusion in our study was 0.01%. Retinal artery occlusion was more frequent in males, who also had a lower age at diagnosis than female patients.

Our study is the first to report the demographic data of patients diagnosed with retinal vascular disease in Türkiye. However, there is a need for both hospital- and community-based, multi-center studies examining more comprehensive patient data and including different geographic regions of Türkiye.

Ethics

Ethics Committee Approval: University of Health Sciences Türkiye, Ankara Training and Research Hospital Ethics Committee (ethics number: E-24-151, date: 06.06.2024).

Informed Consent: Retrospective study.

Declarations

Authorship Contributions

Surgical and Medical Practices: Ö.C., G.O., N.Ü., G.Ü., A.B., Concept: Ö.C., N.Ü., Design: Ö.C., G.O., N.Ü., G.Ü., A.B., Data Collection or Processing: Ö.C., G.O., Analysis or Interpretation: Ö.C., G.O., N.Ü., G.Ü., A.B., Literature Search: Ö.C., G.O., Writing: Ö.C., G.O., N.Ü., G.Ü., A.B.

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